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Metamorphosis and Morphogenesis: Explorations of weathering in woodfired ceramics

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UNIVERSITY OF WOLLONGONG AUSTRALIA

Metamorphosis and Morphogenesis:

Explorations of weathering in woodfired ceramics

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PhD (Creative Arts)

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This thesis is presented as part of the requirements for the award of the Degree of PhD of the University of Wollongong

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CERTIFICATION/DECLARATION

This research has been conducted with the support of an Australian Government Research Training Program Scholarship.

I, Sandra Mary Lockwood, declare that this thesis is submitted in partial fulfilment of the requirements for the conferral of the degree of PhD Creative Arts, from the University of Wollongong, and is wholly my own work unless otherwise referenced or acknowledged. This document has not been submitted for qualifications at any other academic institution.

Sandra Mary Lockwood

February, 2018

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ABSTRACT

This thesis considers the metamorphic impact of weathering in three forms: on British Neolithic artefacts, in nature, and in the analogous metamorphosis of my woodfired ceramic works. Within this thesis the key term 'artefact' is used to refer to objects intentionally made by people with a view to subsequent use. In thinking about metamorphosis, the thesis addresses the transformations and subsequent affective resonances of materials such as clay and stone. Secondly, the thesis considers how the studio practice of making can be understood through ideas of morphogenesis. In emphasising the manner in which studio practice is a process of 'thinking through making' and 'making from the inside', as well as 'noticing what I notice', I propose a new critical approach to materials that is based on an understanding of multiple interrelated 'affective' experiences. I use Tim Ingold's term 'meshwork' to describe the entanglement of these experiences and their relationships to each other. Some notable characteristics of meshworks are: that they are *emergent* in character; that they consist of *patterns and relationships* that a*rise from within the process*; and that they are *not derived by rules.* Meshworks embody *randomness, fluidity, unpredictability* and *potential for synergy*, and often produce *metaphor.* This practice-based exegesis establishes a proposition for an 'affective meshwork' which draws together the two key components of meshwork and affective response. Affective meshwork is suggested as an approach to understanding these complex experiences of materials in the world. The ceramic work made and submitted as a central part of this thesis is key to the expression, documentation, and experience of material ways of knowing.

INTRODUCTION

Being in the world

Noticing

Rock, texture, pattern, colour, tactility, curiosity, memory

An ant's nest pot precariously existing in my driveway

The work of time at Brodgar

The work of fire on clay

Responding

The material qualities of our world surround and strongly influence our everyday lives whether we are aware of them or not. Most of us today spend much of our lives in a characteristically fabricated world of cities, towns and suburbs where our daily environment and artefacts consist predominantly of manufactured and constructed elements, many of which exhibit the material qualities of smooth shiny surfaces, defined edges, and straight lines. When we move away from such a constructed environment we have a chance to experience all the complex richness and messiness of nature with its associated affective response. In this context 'nature' takes the more or less romantic meaning of 'countryside', 'unspoiled places' or an environment not made by people. It includes the air, earth, rocks, water, and the biological entities that are supported by these (Williams 1988). In this environment we have the chance to exercise curiosity. I am curious as to why particular things interest and attract me. This practice-based exegesis is an exploration of this curiosity. It takes the format of a circular movement from materials and processes to a discussion of critical frameworks and back to the works themselves. This is practice-based research and as a result the focus is always on myself as a maker, and on the things that I make. I use the word 'thing' to refer to a particular object which is the subject of attention as illustrated in the first two definitions of the Macquarie Dictionary (*Thing* 2004)[1]. My practice is largely motivated by this curiosity which is expressed in a search for an understanding of the underlying structures and processes that drive my work. Curiosity has an effect on my making because it leads to an approach to making that is constantly changing and evolving. This can be seen in the evolution of forms, changing materials and changing methods. The results of these changes have also become the object of my curiosity and lead to further evolution and changes. They bounce off each other, and my perception, awareness and affective response are heightened and led by what has occurred or what I have noticed. This interaction is, for me,

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[1] *noun* **1.** a material object without life or consciousness; an inanimate object.

noun **2.** some entity, object, or creature which is not or cannot be specifically designated or precisely described: *the stick had a brass thing on it.*

a conversation with clay. As I have worked on my pieces in this project, they have evolved to become abstracted material evidence of time, weathering, and human activity, and a portal through which to link our present lives to past humanity.

This exegesis formally addresses my curiosity about how I experience and understand a particular group of material qualities as they relate to British Neolithic artefacts and to my fired clay works, and is an examination of the processes that bring these material qualities into being. My curiosity arises out of thirty five years of professional making and paying close attention to the material parameters of my practice and the world around me. I started on this path in my childhood. In Britain, whilst growing up, I had many opportunities to experience old sites such as King Arthur's Castle at Tintagel and Stonehenge. Wandering around these massive ruins, it was possible to imagine past lives being lived. Spaces between the structures and window openings were as important as the stone ruins in these experiences as they allowed the possibility of seeing through to another world. The relationship between the spaces and the stone walls gave the environment particular characteristics. Old monuments and timeless stone walls, as well as old and weathered objects experienced in visits to museums in the UK, had a profound effect on the way I thought about the world around me. Weathering as a key concept within this exegesis is well described in the Macquarie Dictionary (*Weathering* 2017) as:

> …seasoned or otherwise affected by exposure to the weather or elements; (of wood) discoloured or stained by the action of air, rain, etc., or by artificial means; (of rocks) worn, disintegrated, or changed in colour or composition by the action of the elements...

My siblings and I played a game when I was young that enhanced my involvement with the natural world. When wandering in the forests in England my mother would send us on searches for such things as a smooth shiny leaf, a forked stick, a round pebble. We were noticing the detail of the environment we were in. I learned this way of *seeing*, and of *being*, in my childhood. This ability developed and helped me become aware of my affective responses to the material qualities I experienced in nature. I began to 'notice what I noticed',

making a connection between experience, feelings and my developing attention and discrimination.

As an adult, subsequent travels in Japan and Europe similarly offered old and weathered surfaces of stone, wood, earth and pots that had a natural patinated beauty and a timeless quality. These too speak to me of something beyond the immediate, something of past peoples, and they echo an essence of greater humanity.

In response to my curiosity about wood-firing and weathering, I began research into the Neolithic period in Great Britain. This period is understood to be from the arrival of farming around 4,000 BC to the start of the Bronze Age around 2,000 BC (Cleal, R & Pollard, J 2004). This was the time when agriculture began, settlements became more stable, and tools were very evident. It was also a time of material investigation and the production of a vast variety of objects. Enormous projects delivered the construction of over 1,000 stone circles throughout the continent. Within this exegesis the artefacts considered include prehistoric ruins, sites, structures, pots, and tools, all of which show evidence of human interaction with materials. After being made, used, lost, discarded, buried by earth, peat or water, and subjected to wind and rain, over thousands of years, today these artefacts show the result of natural processes that add to their affective impact and visual complexity. Ancient artefacts tell a story of skilled hands, lives lived, time, weathering and imagined human activity. The objects they made were skilfully and aesthetically created, beautiful beyond the mere requisites for function. They show evidence of the materials and making processes used thousands of years ago as well as of the time that has passed since.

Neolithic people constructed directly from the material world around them. They chose materials for particular purposes, spaced objects deliberately, made pattern and decoration, and used contrast in colour, texture and shape. Neolithic artefacts also show evidence of the hands that made them. There are pots with impressions made by the human finger and these have been cast to show the shape and texture of the original maker’s fingers including finger nails (Winchcombe 2011).

These artefacts were created in a time before writing, yet a time of many discoveries, and a time of material manipulation of a significant and arguably sophisticated order. The artefacts that the Neolithic people carved, coiled, formed, decorated, and built still have a visual strength and power today both despite, and perhaps because of, the fact that they have been buried, weathered and decayed.

Until relatively recently, archaeologists have tended to focus on production with an economic and sociological viewpoint in their scholarship. They have predominantly described artefacts in terms of their physical location, mass, dimensions, possible use, adaptation and chronology (Case 1969; Clarke 1970; Meillasoux 1972). It could be argued that, in consequence, archaeologists have often overlooked the role of the senses, choice of materials, and use of texture, colour, space, and meaning in relation to the artefacts. The former approach does not consider in much detail the material qualities of the objects, their metaphorical position in the culture, and their affective qualities.

However, more recent archaeological research has started to address the deficits of these earlier approaches. There is now significant work moving beyond technical documentation of physical objects toward considerations of an affective appreciation of them, originally and now, and what can be understood through such considerations (Cummings 2002; Darvill 2002; Edmonds 1995; MacGregor 1999; Wood 2004). One current researcher using such an approach is archaeologist Vicki Cummings (2002). In her studies of monuments in Wales and Scotland, she has identified possible reasons for the variety of contrasts found in archaeological structures, such as rough and smooth stones, contrasting colours, shapes, thicknesses, and heights. Additionally, archaeologist Timothy Darvill (2002) has considered the deliberate choice of colour in the construction of monuments and the manufacture of tools and pottery. Together these approaches offer a new way of appreciating these artefacts within their original context.

Despite emerging research into the original purpose of objects, there has been little exploration of the archaeological object in its current context. Consideration of Neolithic objects which are worn, broken, pitted, eroded and cracked from

use, from being buried, and from the effects of time, remains yet to be fully addressed. A gap exists in the literature in describing the effect of weathering and wear as a process of *metamorphosis* that contributes to the material characteristics and affective potential of these objects as they are experienced today. The term ‘metamorphosis’ in this exegesis is used to convey a number of meanings from geology, philosophy and biology. This terminology is addressed in Chapter One.

The orientation of my approach within this exegesis lies in what can be understood by examining the relationships between me as a maker, the physical materials under consideration, and affective responses (both my own and others’). This is an intimate relationship of making and experiencing that exists on the personal individual plane for myself and possibly, perhaps, for others. In this context my use of the words ‘materials’ and ‘material qualities’ refers to physically tangible objects and individual direct experience of these qualities rather than to various theories of ‘materialism’ (Apter et al. 2016; Bennett 2010). The material qualities of an object are defined in this thesis as what we experience when we directly interact with an object using our physical senses of sight, touch, smell and hearing. The material qualities of a ceramic work could include its size, its colour, its weight or heft in the hand, whether it is rough or smooth, its shape and balance. Experience of these material qualities is the fundamental way of ‘knowing’ the piece. This kind of experience is what underpins our non-verbal (bodily) response to objects. Such a response often lies just below the conscious level. It is commonly labelled as emotional. However, whilst emotion is involved it tells only part of the story. There are also a neuroscientific component and sociocultural influences. In this exegesis the phrase ‘the affective response’ is used to include all these parameters.

My making is grounded in the physical world and in writing I seek to avoid, where possible, multiple layers of meta language where words are written about other words in a process that may take the reader away from relating to and experiencing the phenomenon of the material world. In the experience of my work, and in my discussion of my work in this exegesis, I privilege direct phenomenological experiences. The discussion of the outcomes of my research

is divided into four chapters that each represents a perspective on the questions posed in this exegesis.

In Chapter One I consider what happens when time and weathering result in instability (both creative and destructive) in ancient artefacts as well as in my work. I focus on weathering of materials and British Neolithic artefacts. Weathering is proposed as an idea that applies to the kiln firing of my work. The weathering of both British Neolithic artefacts and my work is considered in relation to ideas of chance and metamorphosis.

In Chapter One I offer the model of an ‘aesthetic derived from material instability’ to refer to the appearance of the metamorphosis of materials as they shift from one state to another through deliberate or accidental processes. I consider how time and weathering creatively and destructively result in instability in both weathered ancient artefacts and my own clay work that has been subject to fire. The resultant aesthetic that can provoke an affective response includes both the ‘solid’ and the ‘ethereal’ properties of the objects under consideration. The 'solid' is understood as the physical presence and particular material qualities of an artefact, whether ancient or new. For example, the standing stones at Stenness are physically present. Some things solidly known about them are the type of stone, their shape, mass, orientation, location and age. In contrast, 'ethereal' refers to the non-physical qualities of objects. The ethereal can be located within and around the solid objects, whether found or created. In the case of my experience of the Stones of Stenness in 2014, 5000 years after they were erected there was an ethereal quality to the site as well as to the stones. There was a sense of a relationship between the eroded stones and the landscape as I stood in the circle and saw the angles at the top of the stones echo the shapes of the hills behind them, and noticed how a particular gap pointed to a low section in the line of distant hills. There was an ethereal, possibly numinous, sense of connection between me, the ‘living’ stones, the ancient landscape, and the people who had inhabited it. My experience transcended the physical properties of the landscape. The intangible qualities of the ethereal considered here include the ‘essence’ of an object that, when experienced, evokes curiosity, imagination and conjecture. This exegesis

proposes that in both found Neolithic artefacts and my created ceramic objects, the processes of weathering and wear impart ethereal qualities to the solid objects. Despite temporal differences, and differences in the processes that cause weathering, I argue that there are similarities in the 'ethereal' qualities and affective response to these objects.

The experience of ethereal qualities could be interpreted as arising from the object's agency, being powerful or emotive, or having certain 'living' qualities. Agency has been described in a number of ways, including in the field of 'new materialism' as a co-participant with human action in relation to events (Apter et al. 2016; Bennett 2010). This understanding implies the emanation of agency from the object. In contrast, the explanation offered in this exegesis is that our affective responses to an object's material qualities arise as neurological and biological events within us, but are experienced and interpreted as something emanating from the object. It is, I argue, the interpretation of affective response that causes us to imagine the object as 'living' in the biological sense of the word.

The interpretation of objects as 'living' can be provoked by observations of changes in objects over time that arise from material instability. Such instability can result from environmental processes of weathering, being exposed to the elements and perhaps being buried for thousands of years. For example, resultant physical and chemical changes contribute to changes in the material qualities of Neolithic artefacts. As well as environmental weathering, a second source of instability arises from the object being used by people. Wear and breakage change the look and feel of the object. British Neolithic artefacts may be worn and changed through use and then become discarded and subject to weathering. The resultant material qualities tell both these stories.

In Chapter Two I explore materials and making as they relate to British Neolithic makers and my work. My work embodies deliberate choices in an endeavour to produce an affective response in a viewer similar to that which I experienced when viewing British Neolithic artefacts and sites. The particular look and feel that I seek arises from a combination of clay formulations, added inclusions, and methods of making that bring out the textural qualities of the material. It

also requires a particular firing method that includes consideration of the placement in the kiln, the length of time and firing cycle used, atmosphere control, the amount of salt, risks taken in placement within the kiln, and even cooling time. The intended result is evidenced in colour and textural variation, and fire induced movement and cracking. In combination, these outcomes produce visual subtlety and complexity. The selection of pieces and their juxtaposition and grouping after firing adds another dimension of experience that can contribute to affective response. This chapter details the process of packing and unpacking a kiln and parallels this with my observations about how Neolithic makers may have understood their own materials.

Making, for me, is material evidence of a kind of conversation with clay. Much of what I do arises from the direct interaction between my body and the material. To this making process I bring my attraction to and engagement with forms, textures, and colours as found in weathered and worn objects, as well as in sites in the built and natural environments. I have come to notice subtle nuances and suggestions that can flow into my making, causing it to take unexpected directions. Some observations are made about what may be inferred in relation to British Neolithic makers. Aspects traversed include contrast, space and assembly and the role of skill, knowing, imagination and problem solving.

Chapter Three forms the critical and theoretical core of the exegesis. In it I address notions ways in which making and responding to madeworks (works made by hand using simple tools) can be characterised and understood as a form of affective bodily knowing. The ideas of affective response and affective meshwork are proposed and discussed in light of personal experience, philosophical scholarship and neuroscientific research. Affective response forms the basis for a poetic language, both verbal and non-verbal, that arises in us as we interact with the world by touching, hearing, sensing, breathing, and feeling. This can be experienced in response to the material qualities of objects in the physical world. For me the response is to such things as the grain exposed in an old piece of timber, the variation in colour and line and form of a stone lying in the bush, the rough bark falling off a tree and exposing a myriad

of new colours and smoothness, the decaying corrugated iron of a shed rusting and patination from many rainfalls producing a variegated and fascinatingly rich surface, and the beach pebbles and chunks of glass on a shoreline that have been washed wondrously smooth and yet textured by the sea. I examine what connects these kinds of material objects together and provokes a strong affective response. The affective response to madeworks can be complex and difficult to specify and describe both in relation to my work and in relation to British Neolithic artefacts. This challenge exists because there are different ways of understanding these concepts, because they rely on a subjective response that differs from person to person, and because it is difficult to describe some kinds of experience with articulated language. Nonetheless, this exegesis is an attempt to further develop these ideas. Literature from other areas of enquiry contributes to understanding how we respond to these aged and weathered objects. These fields include architecture, anthropology, philosophy, neuroscience and archaeology. Contributors of particular interest are Leonard Koren (designer, architect and author on the use of the Japanese aesthetic concept of ‘wabi-sabi’) and Iain McGilchrist (psychiatrist, doctor, writer, and former Oxford literary scholar).

Koren (2008) puts forward some very important ideas about his particular interpretation of the aesthetics that form a central theme of my project. He attempts to describe objects that have been affected by weathering, instability and chance. He considers non-western and particularly traditional Japanese ideas of aesthetics for appreciating these weathered objects which are very resistant to logical methods of analysis. Likewise, McGilchrist (2009), in his ground-breaking work, provides a possible explanation of the difficulty, described by Koren, of putting words to the concepts he is trying to illuminate. In his description of how the brain works, McGilchrist provides an interpretation of the gap between two ways of knowing the world derived from the functional differences emphasised by the right and left hemispheres of the brain. In his article ‘The Tell Tale Brain’, neuroscientist Vilayanur Ramachandran (2012, p. 100) introduces the word ‘rasa’ and interprets it as ‘capturing the very essence, the very spirit of something, in order to evoke a specific mood or emotion in the

viewer's brain'. Ramachandran's argument is that there is a neurological basis for this process.

These theories contribute an interesting and profitable perspective when considered in conjunction with recent archaeological approaches. I argue that there is potential for interdisciplinary cross-fertilisation here. Ramachandran (2012) argues that metaphor arises from a response which is a form of heightened recognition that connects the 'seeing now' of an object with past experiences of seeing. Further evidence in relation to this concept is discussed by McGilchrist (2009, p. 96) through identification of brain function that recognises art in the same way we recognise people. It can be seen therefore that an initial affective neurological response to artistic stimulus may be the centre of a somewhat wider circle of human responses.

Our orientation to this poetic aspect of the material world is interesting and also significant from another perspective, in that it can help us to *notice what we notice*. Human responses are a way of bringing affectively derived attention into the conscious mind for consideration. This process is more complex than merely coming to a conclusion about liking or not liking an object. *Noticing what one notices* is a way of exploring the world of objects, forms, textures and colours, leading to perception of detail and subtlety and thereby unpacking deeper levels of meaning on the path to newly synthesised understandings. As this happens, relationships to and between objects seem to emerge. A detail of one object can evoke a memory of, or link to, another object for no immediately clear reason. Over time and with further attention, these links and relationships can become clearer, forming a meshwork that can act as a foundation for creative insight and making. The triggers to memories and connections that are made can be the starting point for new materials research, and for making new forms and surfaces. After exploring these theories and understandings via my own madework, the threads of Chapter Three are brought together in a discussion of morphogenic making and affective meshworks.

Chapter Four provides a narrative of the underlying understandings and processes behind the making of the works exhibited as the major practice-based research that makes up this thesis. In this project the research thesis is

defined as an umbrella for both the exegesis and the madework. The madework is the core focus throughout. In Chapter Four the works are characterised as expressions of bodily knowing using a visual vocabulary. Making methods and processes are contextualised and discussed in general, as well as in relation to specific pieces. The exhibition as a whole is portrayed as a narrative of the research path taken in the realm of materials. Throughout this exegesis are many images of the work and the processes of making. These images contribute to the narrative and are considered a critical part of the exegetical discussion of my visual making practice. As well as being illustrative as examples, these images are intended to convey that which lies beyond words.

they are the telling

CHAPTER 1: WEATHERING AND METAMORPHOSIS

Figure 1.1 - Stones of Stenness, Orkney, Scotland, photo by author, 2014

Weathering is an important concept and process representing a key concern of this exegesis. It significantly contributes to the way I discuss and understand the shared visual qualities of Neolithic artefacts and my woodfired ceramic work. In the case of British Neolithic artefacts, the weathering process has occurred for approximately 5,000 years. In the case of wood-firing, the weathering process is intensified and shortened because of high temperature, salt and ash. In both cases visual complexity arises from variations of texture, form and colour. I consider these changes as a type of metamorphosis. The term 'metamorphosis' in biology commonly refers to natural change processes in relation to insect and animal development after birth, and in geology it refers to changes in geological materials arising from heat, pressure, and chemical processes. In the context of this exegesis, the term 'metamorphosis' is expanded more figuratively and

metaphorically to include transformations brought about by other change processes such as weathering over time in the natural environment and high temperature wood kiln firing, and in this context the extended meaning is applied to both British Neolithic artefacts and my work.

Within the geological context, the common usage of ‘weathering’ is as a description of the chemical and mechanical processes that cause the breakdown of rock. When rocks such as granite and basalt are weathered, the clay that is at the heart of this research project can be produced. However, weathering does not only apply to rock. With time, the weathering process also attacks the surfaces of human-made constructions and changes their colours and forms. The metamorphic results of both natural weathering on madeworks, and wood-firing of clay objects, produce powerful material qualities. The processes that give rise to these shared material qualities are the subject of this chapter. A brief explanation of various rock types is considered with brief reference to British Neolithic use of rock. This is followed by an examination of the forces of weathering and how these produce particular material qualities within nature, artefacts, and my woodfired work.

1.1 The Rock Cycle

The creative/destructive rock cycle is driven by the Earth’s internal heat under the surface and weathering above the surface. Igneous (molten) rock rises to the earth’s surface by convection, cools and becomes hard and exposed to weathering. Weathered material is moved and deposited as sediment and eventually becomes buried and hardened into rock again in a process called lithification. When subject to additional pressure and heat, rock can change in chemical composition and structure into another rock type and if conditions are right it may even melt again. All rock types can be exposed and weathered and thus re-enter into the cycle. Figure 1.2 summarises these relationships (Rice 2016). Understanding the rock cycle helps with an understanding of the materials that are at the centre of this practice-based research thesis.

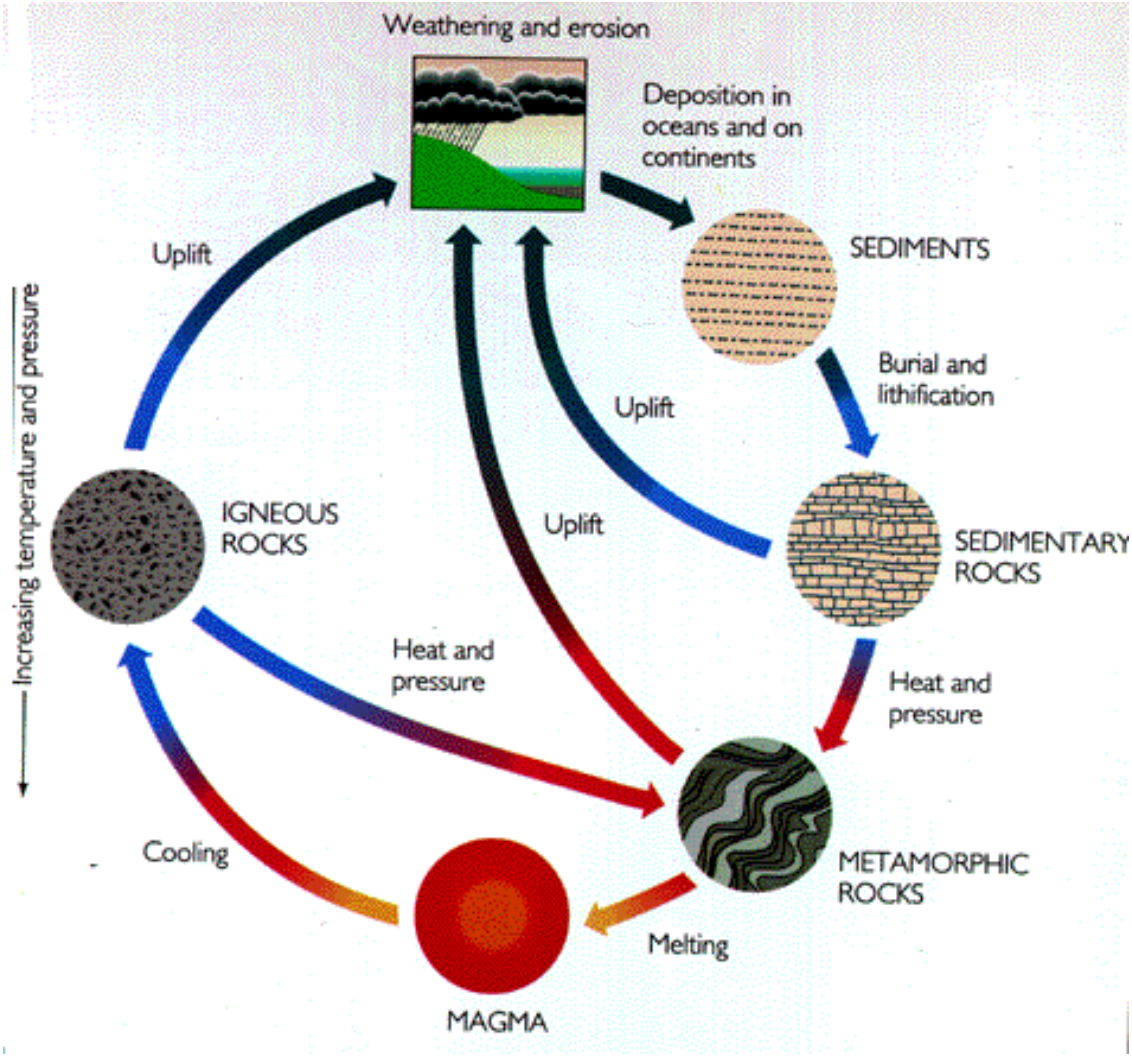

Figure 1.2 - The Rock Cycle (Rice 2016)

1.2 Types of Rock

There are three main types of rock: *Sedimentary, Metamorphic,* and *Igneous.* In the next section, the formation of each type of rock is described, along with examples of how they were utilised by Neolithic people. This knowledge informs the way I approach the behaviours of these materials in my own madework.

Sedimentary Rock

Sedimentary rocks are formed from the erosion of sediments, sand grains, and pebbles, which are exposed at the surface of the earth. These materials are weathered, and the resultant fragmented rock particles are then transported by

erosion and laid down elsewhere as layers of sediment. Sedimentary rocks are then formed through deposition, burial by overlaying material, and *lithification* where pressure and chemical action join the components together (Press & Siever 1998).

Flint, one of the most important of sedimentary British Neolithic rocks, has a biological as well as a geological origin. It is formed from silica which commonly comes from deposited shells of dead ocean creatures that are laid down, buried, subjected to chemical processes, and compacted. Flint can also be formed where carbonate in limestone or dolomite is replaced by precipitated silica. This process produces the flint nodules commonly associated with British Neolithic flint mines. Flint is extremely important because it can be knapped (sharpened by striking with another rock to remove flakes) to make sharp blades for arrow and spear heads, knives and axes, and was used extensively by the Neolithic people of Britain.

Another significant use of sedimentary rock in the British Neolithic period was for building. Sedimentary rock that had fault lines between bedding planes (flagstone) could be quarried in flat-sided pieces and used to make structures, furniture and even roofs.

Metamorphic Rock

Metamorphism as a geological term refers to the process whereby any already formed rock is subject to high temperatures and pressures below the Earth's surface. These forces result in changes to the rock's mineral composition, chemical composition, or texture, despite it maintaining a solid structure (Press & Siever 1998). One example of metamorphic rock is Lewisian gneiss rock found in Western and North-Western Scotland. Gneiss is a metamorphic rock that shows layers of different composition. Each type of band could be of a different original material and/or have a different granular make up. It is common for material in the layers to show a preferred orientation (Kelly 2009).The Lewisian gneiss rock displayed in Figure 1.3 is approximately 2900 million years old. It was perhaps originally Igneous, then buried to a depth of about 40 km. At these depths it would have suffered enormous pressures and very high temperatures. This recrystallised the mineral to produce the prominent

striping. Further metamorphism (that is, more heat and pressure) occurred later, which distorted and emphasised the striping.

Figure 1.3 - Lewisian Gneiss rock, held at Scottish National Museum, Edinburgh, Scotland, photo by author, 2014

Because of its hardness and patterning, gneiss was used in Neolithic times to make, among other things, mace heads, grinding stones (see Figure 1.4), and the mysterious Scottish stone balls (see Figure 1.5). Each of these was made from other stones as well, depending on what was to hand in various locations.

Figure 1.4 - Gneiss grain rubber, 2800 – 3300 BC Scottish National Museum, Edinburgh, Scotland, photo by author, 2014

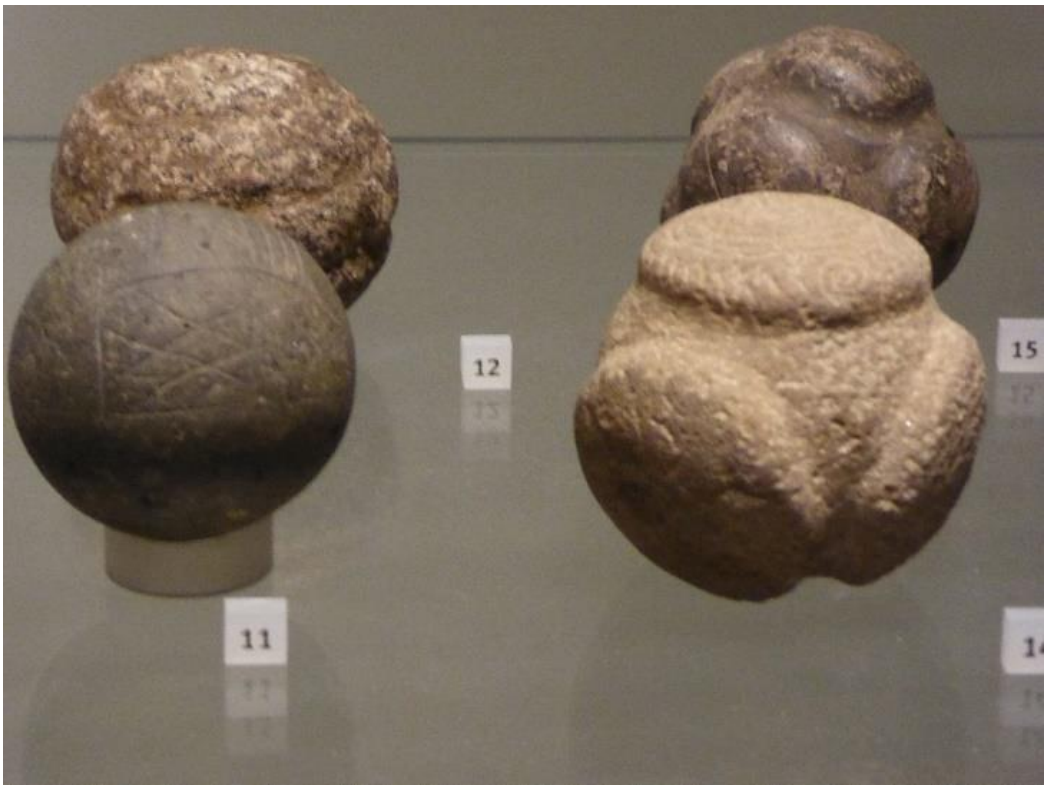

Figure 1.5 - Various Neolithic stone balls, 2800 – 3300 BC, Scottish National Museum, Edinburgh, Scotland, photo by author, 2014

Igneous Rock

Igneous rocks are created by the melting of rocks in the hot, deep crust and upper mantle of the earth. The rock forming process involved is crystallisation or solidification of magma occurring slowly under the earth or quickly from a volcanic eruption. It is the decomposition of igneous basalt and granite through weathering that releases feldspars which are the building blocks of clay.

Arran pitchstone, which is a hard, black, glass-like (silica rich) igneous rock resulting from volcanic action, has been found at the Ness of Brodgar dig site on the Island of Orkney, Scotland. In 2014 a significant sample was curiously found within the core of a building wall. The discovery was curious because pitchstone rock is not a part of the geology of that region but originates from the island of Arran 400km to the south-west. This rock was carried from Arran, most likely through the process of trading. This rock is brittle and difficult to knap but can produce extremely sharp edges. The functional use of the pitchstone pieces found at the Ness remains the subject of archaeological research (Orkneyjar 2014a; Strekeisen 2016). It is curious to me that rock of high enough value to be carried 400km should be incorporated into the core of a building wall.

1.3 Formation of Clay

In Prehistoric times the regional character of clays contributed to the regional character of pots. Pots were originally made in areas where clay could be easily sourced. Neolithic pots can be analysed for mineral composition in order to determine the origin of the clay from which they were made. The formation of clays depends on a combination of chemical and physical weathering caused by the chemical decomposition of feldspar (See Figure 1.6) and other weatherable minerals. The primary chemical components of clay minerals are alumina (aluminium oxide) and silica (silicon dioxide). The exact proportions of these and the presence of other minerals determine how the clay behaves as a material for making.

Figure 1.6 - Feldspar showing weathering in the production of clay, photo: R Weller/Cochise College

Chemical composition determines at what temperature the clay vitrifies, its physical strength and hardness, and its colour and texture. It also contributes significantly to the workability of the clay and therefore what can be made from it.

Clay can be found *in situ* (residual clay) where it was formed and also in low areas in the landscape where it has been carried by erosion (transported or sedimentary clay).

Figure 1.7 shows the source of one of the main clays that I use. This kaolinitic clay is found in the Gulgong region of New South Wales. I use this clay content as a basis for the composition of many of my clay bodies because of its plasticity and low iron content.

Figure 1.7 - Kaolinite clay excavation site, Gulgong, NSW, photo by author, 2014

In situ clay at Gulgong, as shown in Figure 1.8, is included as an illustration of interesting visual qualities such as pattern and texture that can be produced by weathering.

Figure 1.8 - Kaolinite clay bed showing reduction and mobilisation of iron by weathering producing white clay, Gulgong, NSW, photo by author, 2014

In summary, various types of rocks, including sedimentary, metamorphic, and igneous rocks, as well as clays derived from them, were all used for different purposes by Neolithic people. The next phase in the life of the rocks and clay is weathering and erosion. In the following section I consider how weathering and erosion produce visual complexity in these materials.

1.4 Weathering and Erosion

Geological weathering refers to the breaking down of rocks that produces soils, mineral deposits, and dissolved material. This is done by physical, chemical and biological action. These constituent processes of weathering often act simultaneously (Birkeland 1974, 1984; Press & Siever 1998). Erosion is the part of weathering that moves materials away from their original location (Press & Siever 1998). The work of this process comes from wind, water, and ice, assisted by gravity.

As rocks, structures and artefacts decay by chemical means their strength is reduced and they become more susceptible to fragmentation and breakage. Then, when the fragments are smaller, they are more prone to chemical attack on the greater surface area created. Chemical weathering affects minerals by altering or dissolving them. Water is an essential part of this process and interacts with minerals in rocks to form new minerals such as clays and also soluble salts. Hydrolysis is the part of the chemical weathering process where acid water changes the chemical composition and size of the minerals in a rock and thus speeds up the process of weathering (Geological Society 2016; Mamo et al. 2016). This all leads to faster decay and is particularly relevant to the weathering of British Neolithic artefacts. This is evident in both Figure 1.9 and Figure 1.10.

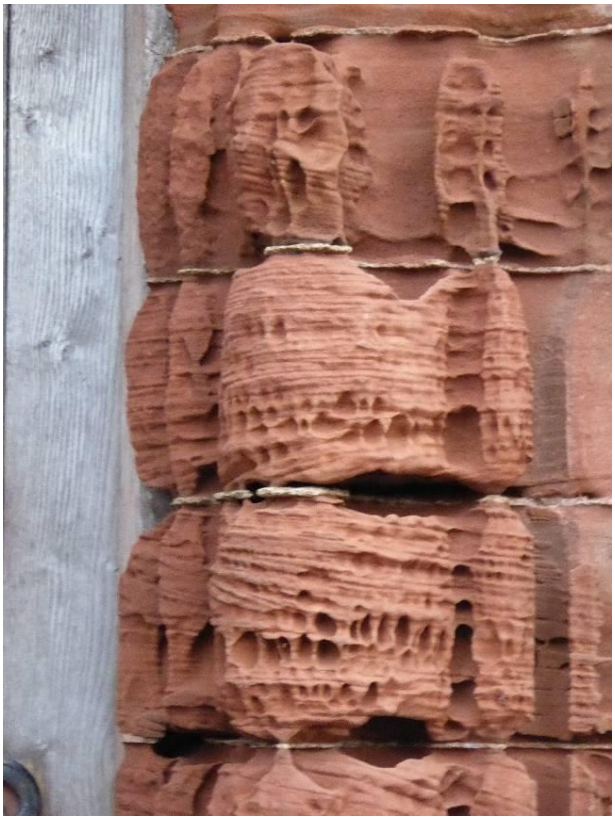

Figure 1.9 - Hydrolysis weathered stone facade, St Magnus Cathedral, Kirkwall, Orkney, Scotland, photo by author, 2014

Figure 1.10 - Hydrolysis weathered stone pillars, St Magnus Cathedral, Kirkwall, Orkney, Scotland, photo by author, 2014

Natural rain water is mildly acidic because of its contact with carbon dioxide in the atmosphere. A good example of its impact on stone is the way old gravestone lettering disappears or blurs (as shown in Figure 1.11 and Figure 1.12), or the way an old building dissolves in patches where it is exposed to rain. It is interesting to note that geologists have used gravestones to measure the rate of weathering of particular stone in particular locations because they are perfect markers of time as they have dates on them. They can measure how much material has been weathered and eroded away and the amount of erosional by-products that are evident. They can put this information together with known dates to calculate rates of weathering in that area (*Gravestone Weathering* 1999-2017). Research is beginning to show that rising carbon dioxide in the atmosphere since 1800 has resulted in an increase in the acidity of rain water (Bogan et al. 2009 pp. 263-271).

Figure 1.11 - Weathered gravestone, example of chemical weathering by rain, graveyard in Edinburgh, Scotland, photo by author, 2014

Figure 1.12 - Weathered gravestone detail, example of chemical weathering by rain, graveyard in Edinburgh, Scotland, photo by author, 2014

Oxygen in air and water can break down rock and change its mineral composition. A very visible example of this is when rocks containing iron appear red or rust-coloured after the process of oxidation. These chemical processes also extend to biological forms of erosion and weathering. Plant roots and fungi such as lichen (see Figure 1.13) contribute to rock breaking down by producing acids and other chemicals which weather rock minerals, and in the process available nutrients are released (Geological Society 2016).

Figure 1.13 - Standing stones detail showing lichen causing biological weathering, Ring of Brodgar, Orkney, Scotland, photo by author, 2014

Physical weathering occurs when physical processes fragment solid rock, such as in spalling or cracking, but do not change its chemical composition. The fine roots of plants and trees, in their search for moisture, can also create cracks in the rocks as they grow. These can become quite large. This biological and physical process of plants growing and making cracks can make a greater surface area for chemical weathering to occur, and for water to enter and freeze, resulting in rocks cracking apart and increasing physical breakdown. Physical and chemical weathering are therefore closely intertwined.

When rocks have been fractured or changed in some way by weathering (chemical and physical) they can then be transported by water, ice, wind and gravity. This movement by natural forces is called *erosion*, an example of which is displayed in Figure 1.14.

Figure 1.14 - Erosion from multiple actions - wave, wind water and gravity, Bough of Birsay, Orkney, Scotland, photo by author, 2014

Water that is moving can pick up and carry mud, sand and rocks and take them downhill to eventually end up in the rivers and the sea. When water slows down it loses energy and deposits the materials it is carrying. The heavier materials are deposited first, and the fine silt is deposited last.

Wave action causes *erosion* of the coastline, as shown in Figure 1.15. Energy within waves, coming from wind and the gravitational pull of the sun and the moon, causes solid material to be picked up and thrown against coastal rocks. Thus, waves can cause undercuts that bring ocean cliffs crashing down. Large rocks that are broken from cliffs become smaller rocks, and then eventually become sand. On a larger temporal scale, differential resistance of coastal rock will determine headlands and inlets. Where the rock is softer it will form bays, and where it is more resistant, headlands will be left. Rock and soil move downhill under the influence of *gravity*, and are eventually carried away by transporting agents. Gravity can cause boulders to roll downhill and pieces to fall from cliff-faces. Whilst other processes may initially loosen material and break cohesion, landslides are primarily gravity driven.

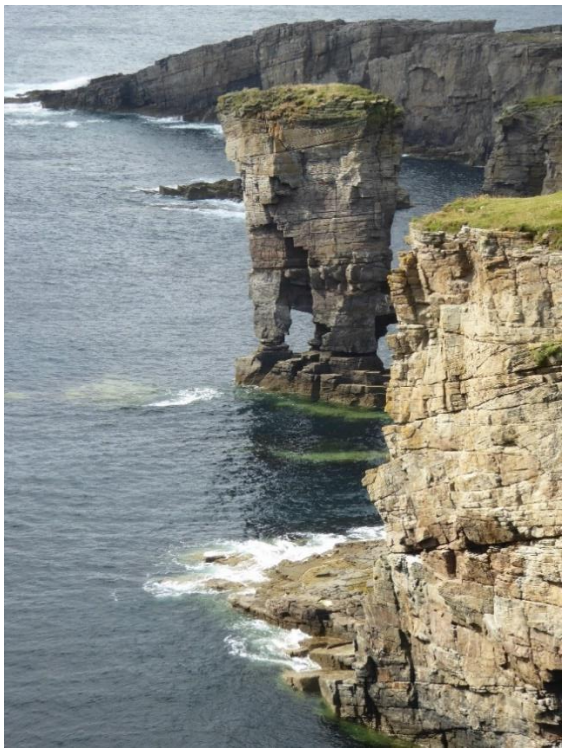

Figure 1.15 - Coastline weathered by waves and wind, Brough of Birsay, North Orkney, Scotland, photo by author, 2014

Rock surfaces can also be weathered by wind. Breathtaking natural sculptures such as some ventifacts are examples of this. Ventifacts are rocks that have been ‘abraded, pitted, etched, grooved, or polished by wind-driven sand or ice’ (Laity 2009).

Erosion is particularly important because it leads to the burying of Neolithic sites, as material eroded from elsewhere is deposited around and eventually over artefacts, and even over entire settlements. Whilst the burying of artefacts is dependent on location and local topography, it can be quite extensive. For example, the Ness of Brodgar was entirely covered with up to four metres of soil over the four thousand years since it was abandoned.

Another way artefacts can be buried is by the process of *bioturbation,* which is the mixing of soil by soil organisms. This was first explored by Charles Darwin who concluded that earthworms could bring several millimetres of soil per year to the surface (Kutschera & Elliott 2010). Bioturbation can explain why artefacts

may be buried in landscape positions where sediment deposition is not occurring (for example, on hill crests or the upper sections of hill slopes).

Weathering, erosion and bioturbation can be seen in Orkney where there are the remains of Neolithic stone structures that have collapsed under the weight of the accumulation of soil, as shown in Figure 1.16 and Figure 1.17.

Figure 1.16 - Collapsed Neolithic stone structure buried by erosion, Ness of Brodgar dig, Orkney, Scotland, photo by author, 2014

Figure 1.17 - Pot fragment in situ, found at Ness of Brodgar dig, Orkney, Scotland, photo by author, 2014

In Great Britain it is not uncommon for excavations for roads, bridges and buildings to uncover Palaeolithic and Neolithic artefacts that have been buried by deposition of eroded material. At the Ness of Brodgar site, geotechnical research has discovered structures indicating settlement that cover an area of about 2.5 hectares, and are now buried under farm land. There is a suggestion that the site is much deeper than excavations have shown to date. This indicates the extent and ongoing nature of the weathering processes (Orkneyjar 2016).

In my field research in 2014 I met with Margaret Hunt and her son Charlie. They live near St Keverne, Cornwall and own a farm in which they have uncovered many stone artefacts. In his work as a builder in the nearby region, Charlie also uncovered a number of buried stone artefacts, including the flint razor displayed in Figure 1.18, and the pot shard displayed in Figure 1.19.

Figure 1.18 - Flint razor undated (6.5cm long) found by Charlie Hunt, St Keverne, Cornwall, Britain, photo by author, 2014

Figure 1.19 - Rim of Neolithic pot discovered by Charlie Hunt under farmland soil at St Keverne, Cornwall, Britain, photo by author, 2014

1.5 Erosion by people

In these contexts, moving and working a stone for use contributes a level of human-driven weathering and erosion. In the case of standing stones, rocks are broken down (quarried) and then moved for use (deposited). Flint was dug up, mined (brought to the surface), and roughs were cut out by knapping and sometimes taken away for finishing, leaving large heaps of discarded waste material. Another aspect of human-caused erosion is the apparent deliberate covering of sites by humans. At the Ness of Brodgar it appears that some buildings were destroyed around 2600BC and buried by humans with a large volume of soil mixed with ash and midden material (Orkneyjar 2014b).

Erosion, then, is an important force that signifies the passage of time, changing the physical materiality and look of things made by nature and made by people. Understanding these processes helps me understand the connections between my works and the works of British Neolithic makers.

1.6 Weathering and Neolithic artefacts

The action of weathering and erosion on British Neolithic artefacts and structures has changed their original material qualities. The length of time of exposure to various weathering processes directly affects the outcome and the kinds of changes that can be seen. These changes to material qualities, including changes to surface texture, colour, edges and forms, as well as how we view them and what sort of affective response they produce in us, form a significant theme within this exegesis. The blurred and pitted marks on a weathered monument (Figure 1.20) are evidence of these kinds of changes wrought by weathering.

Figure 1.20 - Weathered standing stone at the Ring of Brodgar, Orkney, Scotland, photo by author, 2014

Edges of decoration that have been softened by weathering can be seen in Figure1.21.

Figure 1.21 - Incised and weathered Neolithic pot shards, Salisbury Museum Wessex Gallery, England, photo by author, 2014

For example, if an object were briefly preserved in a peat bog or a lake, as shown in Figure 1.22, then exposed to the weather for a long period, it would look quite different to a similar object which has remained relatively protected in a burial cist (see Figure 1.23).

Figure 1.22 - Neolithic pots shards recovered from Isle of Lewis Loch and photographed by Chris Murray, accessed with permission from photographer

Figure 1.23 - Beaker pot from burial Cist, dated from 1800 to 2300BC, held in Scottish National Museum, Edinburgh, Scotland, photo by author, 2014

Neolithic mark-making on stones and clay artefacts that are dug out of archaeological sites is also less distinct because it has been chemically weathered by soil acidity as can be seen in Figure 1.24.

Figure 1.24 – Neolithic food vessel found buried in soil, Orkney museum, Scotland, photo by author, 2014

How British Neolithic pots were made and how they were fired influences how they respond to the forces of weathering and therefore the material qualities they exhibit today. It is unknown exactly how Neolithic pots were fired, as there is no evidence of any sort of kiln use. Based on the traces of firing on surviving pots, it is believed that Neolithic clay pots were fired to low temperatures using either an open bonfire or a cooking pit (Gibson 2002). Temperatures reached during this process were very variable, within an individual piece, from pot to pot in the one firing, and also between different firings. Clays used from different sites had different vitrification temperatures and thus ended up having various levels of hardness when fired. As a result, pots from different regions weather differently. Some parts of a clay body used in the construction of an ancient pot will weather more than others because the clay is not necessarily uniform in composition nor fired evenly to the same temperature in a bonfire. Inclusions such as stones or pieces of broken pot in the pot fabric are more likely to remain than other softer clay minerals (see Figure 1.25). Additionally, the making method and shape of the vessel, as well as subsequent use (for example, a pot for cooking on a fire or a vessel for storing grain from season to season), make it more or less resistant to changes through being buried, broken and weathered.

Figure 1.25 - Uneven surface weathering on Neolithic pot, held at Blythe House, British Museum, London, photo by author, 2014

Stone also wears the influence of weathering arising from human interaction. When a tool, artefact or structure is fashioned from stone, previously internal surfaces are exposed and thus are vulnerable to weathering. Figure 1.26 shows texture and colour in worked stone induced by weathering. After its useful life it may be discarded in a location that increases the effects of weathering or buried in a way that inhibits weathering. All these aspects result in profoundly different appearances.

Figure 1.26 - Neolithic stone pot lid, Orkney museum, Scotland, photo by author, 2014

With repeated use, some artefacts, whilst resistant to natural weathering, nonetheless accumulate signs of use such as grooves, nicks, chips and softened edges that tell of their lives (see Figures 1.27 and 1.28). This can be considered weathering by wear.

Figure 1.27 - Stone tools dug out during 2014 dig, Ness of Brodgar, Orkney, Scotland, photo by author, 2014

Figure 1.28 - Neolithic Stone tool held at Blythe House, British Museum, London, photo by author, 2014

Stone material used in an artefact or structure may contain layers or patches of harder or softer minerals. The direction in which stone is cut and worked in relation to these patches may expose more or less surface to weathering and subsequent corrosion as softer elements (e.g. limestone or chalk) dissolve. The standing stones at the Ring of Brodgar in Orkney, in Figure 1.29, show the results of these weathering processes. The results of spalling can be seen in the peeled look of the surface and chemical weathering has caused pitted indentations. Some edges have also been softened by a combination of chemical and physical weathering.

Figure 1.29 - Detail of weathering of surface of standing stone at Ring of Brodgar, Orkney, Scotland, photo by author, 2014

British Neolithic artefacts, being made from varying materials in varying ways and subjected to varying intensities and forms of weathering, show a resultant variety in material qualities and look. It is as if they each have an individual narrative of 'being' from making, through use and weathering, to the present that gives each an individual presence. Paying close attention to the fine differences between the artefacts, and the ways in which they have survived into the present, informs the way that I consider weathering and metamorphosis in my own works.

1.7 Wood-firing as a form of weathering and metamorphosis

As well as detailing its relationship to geological processes and British Neolithic artefacts, I use weathering in another sense: to refer to the atmosphere within a wood firing salt kiln and the way that it acts on clay objects. The atmosphere of the kiln both weathers the clay objects and metamorphoses them literally and figuratively.

The temperature in my wood kiln is higher (around 1320^0C) than that of a lava flow (around 1200^0C) or that required to metamorphose rock (from about 300^oC to 800^0C). Thus, the action of the heated atmosphere in my kiln initially metamorphoses clay objects in the geological sense. Then, as the temperature rises further, heat and fluxes act as weathering agents to initiate metamorphosis in the wider non-geological sense. These textural and chemical compositional changes occur within a kiln firing in an almost identical fashion to geological processes, except that, due to the extreme heat, in-kiln processes take days while natural processes of weathering take many years.

Firing clay to high temperature, as in my work, involves a very similar sequence of processes to that of geological metamorphosis, where unbound water occurring in porous materials is removed at around 100^oC to 200^oC and chemically bound water is removed at around 600^oC (Press & Siever 1998). Vitrification of clay minerals via heat produces particular crystalline structures in the fired work. These works are permanently changed from the original clay material. The resultant textural qualities after firing are a direct result of the

temperature and time involved in the firing. Because the firing process is much hotter and quicker, the crystal size in fired clay is much smaller than that in metamorphosed rock, and the transformations are visible. Figure 1.30 shows the results of in-kiln metamorphosis where pieces are altered and fused.

Figure 1.30 - Sandy Lockwood, Looking down into the kiln firebox, 2013

Clay bodies have different mineral compositions and therefore different vitrification temperatures. This affects how much change they undergo in firing. A clay that is not fired to its vitrification temperature will be more fragile and have a greater chance of breaking in use. Neolithic pots were fired to relatively low temperatures (600 to 800^{o}C) in open fires using wood as a fuel and thus did not reach full vitrification. This has made them prone to weathering by chipping, cracking or decomposition. In contrast, clay bodies are designed for stoneware temperature firing around 1300^{o}C. When fired, they are usually fully vitrified and have high strength.

In ceramics there is a commonly used concept of heat work that refers to the action of heat over time, leading to melting, transformation and vitrification of clay or glaze. This process of melting and transformation underlies the creative and destructive contribution that the firing makes to the work. Over a three-day

firing, an extra hour of heat work at a particular stage can make a significant difference to the material qualities of the pieces that emerge from the kiln. The main contributing processes are the accumulation and melting of ash, the inclusion of carbon, oxidation and reduction reactions within the clay body and glazes, as well as physical distortion caused by pyro-plasticity of the clay body at high temperature. In my practice the addition of common rock salt (sodium chloride) to the kiln at high temperature adds additional flux to the equation thereby intensifying and amplifying the interactions of clay and glazes within the kiln atmosphere. In natural weathering, the particular chemical and physical structure of the material being weathered is a major determinant of the look of the weathered object. This is also true of the metamorphosis and weathering processes within the kiln. The composition and structure of the clay body and the type of inclusions are significant determinants of the final result. It is the combination of all these reactions together that produces changes in the form, surface colour and texture of my work. These material changes are the 'metaphorical and actual weathering' that connect my work with Neolithic artefacts.

1.8 Weathering, chance, and metamorphosis

Weathering in nature and 'weathering' in my kiln both produce changes in the material qualities of objects that I have characterised as a type of metamorphosis. The changes considered are primarily related to visual complexity, including colour, texture and patination. In addition, I have considered changes that occur to the form that produce irregularity and asymmetry, and particularly changes that occur at the edges and boundaries of the object. These edges are places where the action of weathering over time has left for that moment but they still suggest a continuation of possibilities. The edges lead and allow the imagination to follow. The nature of these changes is illustrated by Figures 1.31 and 1.32 which show works before and after firing.

Figure 1.31 - Sandy Lockwood, Works in kiln before firing, 2014

Figure 1.32 - Sandy Lockwood, The same works as in Figure 1.31 above after firing showing how they have been 'metamorphosed' by in-kiln weathering, 2014

My response to these material qualities was the starting point for, and underpins, this overall research endeavour, both in the exegesis and the body of studio work. British Neolithic artefacts and my work are the specific things I have taken up as vehicles for exploration. It is the similarity of my response to

each that is the binding thread. In both cases, chance and uncertainty play an important role.

In the physical realm change is sometimes predictable. For example, a cube of H_2O ice in a glass sitting in the sun will predictably turn into water and then into vapour. Yet sometimes change is unpredictable and chance in this context has a particular meaning. One use of the meaning of 'chance' comes from the field of statistics. Statisticians describe situations where an event may unfold in a finite number of possible ways, any of which may be predicted statistically, for example the 50% likelihood of 'getting a heads' when tossing a coin. However, chance quickly becomes more complex in the broader material world. For example, a speeding driver is subject to chance in that s/he may be booked for speeding, or may have an accident, or may just arrive at a destination more quickly than if s/he had not sped. Calculation of the chance (probability) of each of these outcomes is theoretically possible but beyond reasonable useful practicality. It is this latter interpretation that I favour when referring to the term 'chance' in relation to the processes and results of weathering in Neolithic objects and my work. For practical purposes I consider the results unpredictable.

Thus, in this exegesis, I embellish the word 'chance' to contain the ideas of randomness and unpredictability causing change, and also use it as an adjective, as in 'chance outcome'. There are some parameters within which I work that are relatively predictable. There are also chance-derived outcomes that cannot be predicted or imagined. The field of possibilities from which such outcomes arise is, for all intent and purposes, not finite.

The interaction with chance using natural forces and natural materials is seen in other contexts in the work of such artists as Andy Goldsworthy, Richard Long and Robert Smithson. These makers set up material conditions in the form of art works that are from and within nature, and which are subsequently acted on by natural forces. It is the role of chance in their works that is held in common with my making practice even though the works and methods are quite different.

Weathering in nature and salt-glaze wood-firing destabilise both physical and chemical structures of objects, causing them to change and recombine. In the case of salt-glazing in my wood kilns, the actual nature of the chemical glazing reaction is well understood and predictable. However, within each firing and for each piece, the extent of various reactions and the final look of its outcomes are considered unpredictable and subject to chance.

Physical and chemical processes in my wood fired salt glazing kiln subject the objects within to a form of change analogous to natural weathering. Raw clay pieces that went into the firing with relatively smooth and uniform surfaces and colouring (See Figure 1.33) can be significantly changed by the effect of temperature, time, wood ash and salt (Figure 1.34). Wind also plays a part in the firing process as the air moving though my wood kiln picks up ash and moves it to interact with the other active processes.

Figure 1.33 - Sandy Lockwood, 'Adze series', before firing, 2013

Figure 1.34 - Sandy Lockwood, 'Adze series', after firing, 2013

Changes in made objects that are subjected to instability and chance provide the opportunity for the creation of new material and non-material qualities, extending beyond the conscious intent of the maker. In this way, instability implies chance in both process and outcome. These attributes, when attended to, can generate affective responses and new ideas. I would argue that creativity springs in part from the ability of the maker to notice and utilise these opportunities.

1.9 Material instability derived aesthetic

Weathering of Neolithic artefacts and weathering within my kilns are foundational processes underpinning what I describe as an 'aesthetic derived from material instability'.

The term 'aesthetic' has been the subject of much scholarship and debate. The most likely first use of this word was by Alexander Baumgarten in his Latin treatise *Aesthetica* in 1750-8 (Baumgarten 1961). Originally this term was used

to refer to beauty and the senses, and this meaning persists to a certain extent now. Additionally, in common usage today, it is used as a shorthand for an appreciation of elements that have a particular look. As with many English terms, part of the difficulty using the term ‘aesthetic’ is that its meaning can vary with context. Examples of a particular aesthetic can be not too difficult to recognize with experience, but can be challenging to delineate, identify and define unambiguously.

Even given this practical challenge, a number of authors have referred to an aesthetic related to weathering, if only by implication. Weathering and a consequent transformation of artefacts is recognised by archaeologist Mark Edmonds (1995, p. 17) who described:

> the patina of age as transforming ancient objects which when seen today ... may be valued for their perceived aesthetic qualities or for the sense that they evoke of a long-established human presence.

It can be considered that the surfaces of weathered objects ‘have a richly complex language of their own that evolves and changes over time’ (Pallasmaa 2000, p. 78).

In Leonard Koren’s (2008, p. 62) words, weathered objects are:

> expressions of time frozen ... materials visibly vulnerable to the effects of weathering and human treatment … records of being in this world that still retain ... strength of character … even when on point of disintegration.

Figures 1.35 and 1.36 below serve as an illustration of these ideas. Each piece encapsulates an instability-driven metamorphosis.

Figure 1.35 - Sandy Lockwood, 'Metamorphosis series', after firing, 2013

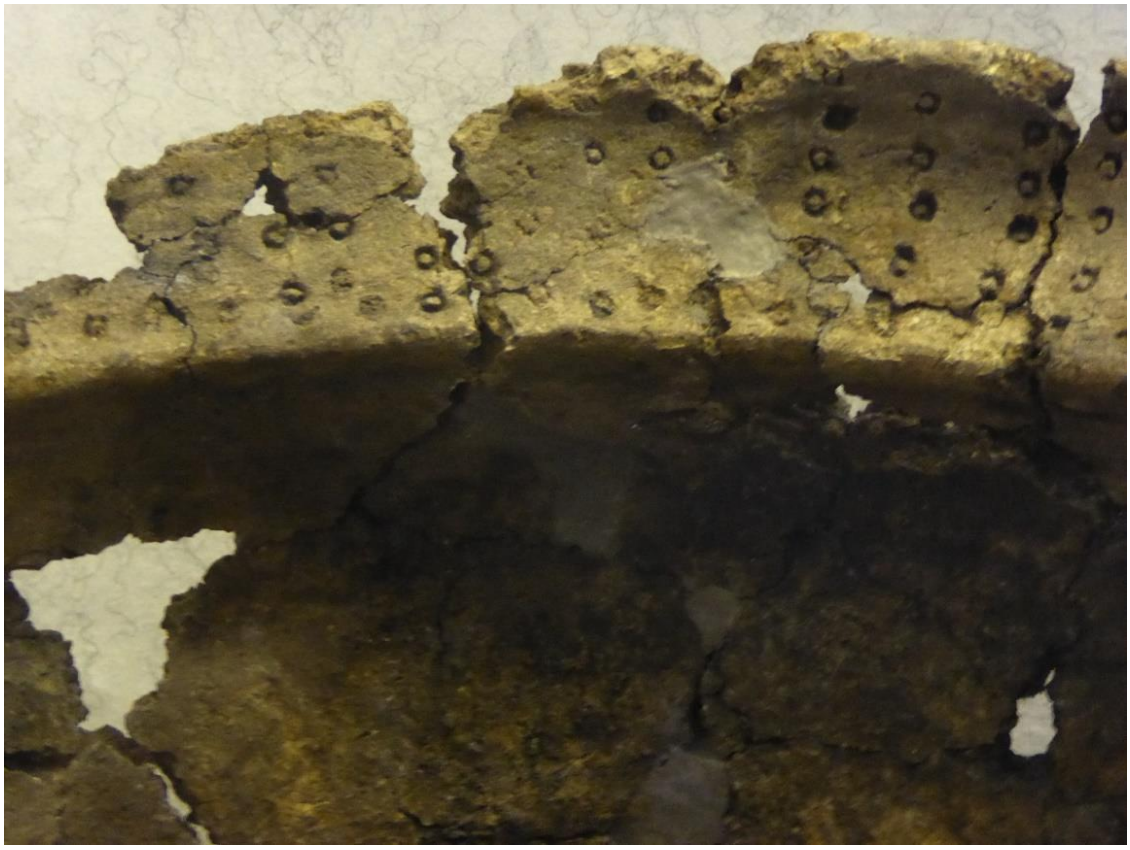

Figure 1.36 - Rim of Neolithic ‘funerary urn’, Skaill Cist, excavated 1989, Orkney Museum, Orkney, Scotland, photo by author, 2014

It is to the materials and making that produce such an aesthetic that I now turn.

CHAPTER 2: MATERIALS, MAKING AND COMMONALITIES ACROSS TIME

2.1 Materials and Making

Materials and making are considered within this exegesis because what madeworks are made from, and how they are made, directly determine how they look and therefore how they are subsequently experienced as they undergo weathering. Thus, this chapter will focus on the materials and the making processes that bring works into being with reference to British Neolithic people's making and my own making. Materials and making of this kind are intimately bound together and interact with each other through the medium of the body.

The process of gaining knowledge, of learning about materials and relating to the characteristics of weathered things is a whole-body experience. Being open to this whole-body experience of things helps us to understand them. Sight, touch, sound, smell and even taste are ways of knowing materials. In the case of stones, colour, texture and sound as they are knocked together can give an indication of their density, hardness and possible usefulness. Picking clay up and squishing it between your fingers, and feeling its silkiness or roughness can help with an understanding of the characteristics of damp clay. Rolling the clay into a coil and wrapping it around a finger to see if it breaks or bends can also provide information about its plasticity. Gaining this kind of direct understanding requires bodily interaction with materials.

The bodily understanding of materials has been a topic of exploration. Mark Edmonds (1995, p. 9) explains that:

> As with many of the tasks that we routinely perform today, the act of working a piece of stone involves a tacit negotiation of the material. In which hands, eyes and ears and expectations are all engaged.

In engaging the senses to work with materials, Edmonds emphasises that truth to materials involves working with their characteristics. Making from this perspective inherently involves an interaction between the maker, materials and

the world. In Tim Ingold's (2013, p.111) words: 'The maker is the "go between" the material and the world.'

The body engages with the material world in its own way and experiences the properties and qualities of materials. Bodily 'sense knowledge' combines with consciousness and curiosity, leading to such questions as: What can I do with this material? How might it be useful? What do I feel when I handle it? What am I learning? Ingold (2013, p.115) encapsulates the bodily experience of making when he writes: 'Making as a conversation between maker and the material.'

This conversation is direct. It is between the maker's mind and body, the material, and any tools used in making. Ingold (2013 p. 6) differentiates between 'thinking through making' and 'making through thinking.' This is an important distinction. Thinking through making allows for transcendence of any separation between the body and mind as sources of knowing and expressing. Each jointly takes part in the creative conversation that is making. As a result, creative thought processes can work in a bodily way without formal language, and can be expressed using a non-verbal (that is, material) vocabulary.

Ingold (2013) compares methodological approaches between the mode of making of a theorist and that of a craftsperson. The theorist, he suggests, makes through thinking in a mode where thinking is done in the head and the results are applied to the material world. In thinking through making, on the other hand, knowledge grows from practice and observation while the craftsperson engages with materials and the making process (Adamson 2007; Dormer 1994). This approach is characterised as an 'art of inquiry' (Ingold 2013). Such a distinction is fundamentally important in Ingold's approach to making. It is an approach that calls for the maker:

> … not to describe the world, or to represent it, but to open up our perceptions to what is going on there so that we, in turn, can respond to it. That is to say, it is to set up a relation with the world that I shall henceforth call correspondence. (Ingold 2013, p. 7)

This way of understanding the character of making as a relationship of correspondence speaks to my own experience and by extension to my

understanding of making in British Neolithic times. Making, as I conceive it, lies in the realm of curiosity and occurs through extensive direct interaction in correspondence with materials.

Ingold's approach argues for a definition of thinking that is based on the interaction of the whole body with its material surroundings, a concept that is relevant both to the lives of British Neolithic people and to my own. He writes:

> This is not to think by means of movement, or to have our thoughts transcribed into movement. Rather the *thinking is the movement*…. (Ingold 2013, p. 98 - original empahasis)

And: '…making as movement recorded' (Ingold 2013, p.121).

It can therefore be seen in the act of making that thinking can literally be movement, and making can be movement recorded. As a result, making in this paradigm can be considered as a class of thinking. This idea applies to my making and I would suggest there are clear correspondences also to the British Neolithic people's making.

The similarity between my making and what can be conjectured about making in British Neolithic times may be superficially obscured by technological and cultural overlays. For example, British Neolithic makers dug clay from deposits and carried it to making sites, whilst I purchase powdered raw materials and mix them with found materials to form clay bodies. Mine is just a different, albeit a far less demanding, way of sourcing materials for use. The fundamental requirement for suitable clay to work with remains the same. Once my clay is mixed, I am working with the same kind of material that British Neolithic peoples did, and in a similar manner. We both make with our hands, bodies and simple tools.

2.2 British Neolithic Materials and Making

Contemporary understandings of British Neolithic people and their way of being in the material world arise from examining and analysing direct material evidence that has survived until today, and from interpreting the results of

experimental archaeology. Following up on archaeological reading, whilst undertaking field research in Cornwall, I collected some Gabbro clay named after its base rock (see Figure 2.1). This clay was used by some of the British Neolithic people in making their pots. It is plentiful and easily obtained as well as being easily worked.

Figure 2.1 - Raw Gabbro clay, from St Keverne, Britain, photo by author, 2014

It was easy to imagine a British Neolithic maker having the very same sensations as I did as I kneaded and rolled it in my hands, felt its texture and plasticity, smelt it, noticed its colour, and pinched out a small cup shape. I felt a direct connection to an imagined British Neolithic person doing exactly the same thing with the same clay. This was an intense and unforgettable experience. It was not only a connection between me and my world, it was also a connection to another world and its people.

I fired this clay to a temperature of 1000^{o}C. The resulting test discs are displayed in Figure 2.2. The fired clay had partial vitrification and in my opinion had an interesting texture and colour.

Figure 2.2 - Sandy Lockwood, Bisque fired Gabbro clay from St Keverne, 2014

You may notice that the test disks are split. This happened during drying and firing. Possibly to address this character of the clay caused by shrinkage, during the Neolithic period, British potters mixed grog (ground up flint, ground shell, and even ground up pieces of broken fired pot) to the base clay to make it more robust during making, drying, firing and use. In Neolithic times this clay was most likely fired to around 800ºC or lower in an open fire above the ground. Low temperature firing of British Neolithic pots leaves them relatively soft and vulnerable to weathering and breakage.

When fired to stoneware temperatures (approximately 1260º to1320ºC) in my wood salt kiln, this St Keverne clay melted. This is because in modern classification it is an earthenware clay which means it has a vitrification point much lower than the usual temperature that my work is fired to.

The Dig

In 2014 I spent a few weeks at the Ness of Brodgar dig on Orkney, North of Scotland (see Figures 2.3 and 2.4), as well as visiting a number of other Neolithic sites there.

Figure 2.3 - Aerial view of Ness of Brodgar dig site, Orkney, Scotland, 2014, permission to use image ORCA, 2017

Figure 2.4 - Aerial view of Ness of Brodgar dig site, Orkney, Scotland, 2014, permission to use image ORCA, 2017

This experience was profound. I watched the process of carefully scraping back layers of soil to uncover fragments of pots from the lives of past makers. I could imagine the people finding clay sources, noticing which clay can be moved and manipulated when wet. I imagined them sitting on the ground with clay, making their pots, pressing with their fingers and making patterns. I imagined them leaving their pots to dry near the open fire, as there was evidence of fire places at the dig.

At the site there were experimental archaeologists knapping flint and demonstrating how sand in combination with a wooden bow drill can be used to bore a hole in hard stone such as flint or gneiss. I could also imagine British Neolithic people noticing certain useful stones in the landscape, gathering and hitting stones together to form tools, and grinding holes in stone for wooden handles to go through. I saw stones laid together to form walls and doorways. I saw stones formed into boxes on the ground in their houses. Some archaeologists I discussed these with informally at the dig suggested they may have possibly been used for holding their sea catch or fishing bait molluscs (Figures 2.5 and 2.6).

Figure 2.5 - 'Fish boxes' discovered at Ness of Brodgar dig, Orkney, Scotland, photo by author, 2014

Figure 2.6 - Stone ‘fish box’ and reconstruction of one at Skara Brae, Orkney, Scotland, photos by author, 2014

I saw remnants of hearths (Figure 2.7) and imagined people gathered around them.

Figure 2.7 - Hearth at Ness of Brodgar and reconstructed hearth at Skara Brae, Orkney, Scotland, photos by author, 2014

Everywhere at the archaeological sites I visited there was evidence that making was central to British Neolithic life. It struck me intellectually and emotionally that these British Neolithic makers made decisions to decorate many of the things they made, even though decoration was not necessary for what today we call the function of the thing. It is important to consider that British Neolithic peoples may not have had the same way of understanding of the world where function and decoration are separate ideas. A good example of my proposition is the enigmatic Scottish carved stone balls (see Figure 2.8) that seemed to carry some functional meaning in their carved decoration.

Figure 2.8 - Sandy Lockwood holding a carved stone ball that was discovered at the Ness of Brodgar, Orkney, Scotland, 2014

If this is so, it may be that the concept of a pot, for example, carried the ideas of form and decoration bound within it. The pots represent an investment of time from Neolithic people as they exercised the skills required to decorate, for example, cooking or storage pots. There were many examples of these decorated pots in the Orkney Museum and at Blythe House, British Museum, examples of which are presented in Figures 2.9 – 2.11.

Figure 2.9 - Decorated Neolithic pots from the Orkney Museum, Scotland, photos by author, 2014

Figure 2.10 - Decorated Neolithic pots at Blythe House storage building of the British Museum, London, photos by author, 2014

Figure 2.11 - Decorated Neolithic pots at Blythe House storage building of the British Museum, London, photos by author, 2014

Decoration of ceramic pieces varies between robust clay additions and very fine inscriptions and patterns. The latter implies that there was some understanding of and ability to recognise detail. Additional mark-making that implies recognition of detail is evidenced in runic carving on stone. This idea is reinforced by my observation of a recently discovered group of extremely fine line rune inscriptions in a stone which formed what used to be an entrance to a building, in the Ness of Brodgar dig (see Figures 2.12 – 2.14).

Figure 2.12 - Inscripted Neolithic stone discovered at Ness of Brodgar, Orkney, Scotland, photo by author, 2014

Figure 2.13 - Intricate designs Neolithic decorated stone from Structure -11, August 13 dig diary Ness of Brodgar, Orkney, Scotland, permission to use image from ORCA

Figure 2.14 - Incised stones from Neolithic period held in Orkney Museum, Orkney, Scotland, photos by author, 2014

Mark-making is a form of communication. Runes evolved to serve the purpose of written communication, whilst marks and decoration on pots and tools could refer to the maker, the maker's family, the clan group or region or just be a form of creative expression. These decorations spoke to me eloquently, expressing a common humanity between the Neolithic period and the present time in which I am making.

We cannot know whether decoration was a concept the British Neolithic people considered separate to the function of the thing. It may be that decoration arose within and as part of the process of making. In my work, the accidental mark once noticed can be turned into decoration by repetition of pattern. It is easy to imagine the British Neolithic maker noticing his/her finger nail mark when pressing into clay and then considering repeating the gesture to produce pattern. In my experience working with children using clay, they will often make something they are familiar with. They then most commonly will spontaneously and without instruction go on to make pattern and decoration on the surface. This action seems to me innate and unselfconscious, and it leads me to wonder whether it is universally human. Pattern exists in the natural (not people-made) world and when it is noticed it can influence the making process, whether subconsciously or deliberately. These experiences lead me to wonder whether this influence arises from a deep ontological drive. The decoration of things could be argued to be universally human and potentially innate. I continue my discussion of this further in Chapter Three. Whilst neurologist Ramachandran (2012), who writes about the biological foundation for art, does not write

specifically about decoration, his work supports the notion that decoration and pattern making are important to human ontological frameworks.

It appears to me that British Neolithic people were in more direct intimate physical contact with their environment than is the case for us in contemporary cultures. They interacted more with the ‘raw’ unmediated aspects of the world because they did not have the layer of technology between themselves and physical contact with the world that pervades contemporary society. For example cars, earthmoving and farming machinery, modern medicine, reticulated hot and cold water and air conditioning all mediate our experience of the world around us. Neolithic humans did not have mass industrialisation to generate the material effects that make our lives comfortable. Instead, we can assume they noticed the materials available to them, and they gathered and found uses for some of them. They could identify qualities such as the hardness of a stone to make an axe or arrow head. And, significantly for this project, they added materials to clay to form vessels that would withstand the heat of their fires.

Making in the context of the British Neolithic society is not necessarily a single discrete action. Making can be considered as part of a cycle of interaction between materials, people and the environment. This cycle of interaction, as evidenced through archaeology, moves from raw material to newly formed things, to current use, to re-use and possible repair, and then to burying them with their dead in graves, or just discarding them. This cyclical view suggests that British Neolithic people could have chosen raw materials as the first link in a chain of relationships that connects discovery and selection with the collecting and making process, and then to use and disuse. The chain can be seen as a kind of flow where the maker, the material and the user move in an interaction that evolves a thing into being and then out of being again (Ingold 2013).

As a result, it is reasonable to believe that particular materials could have been chosen in the context of this flow. A maker choosing which material to use was likely to have had an understanding of the array of purposes for which it could be used. Such an understanding could be derived from instruction or imitation of others, and combined with personal practice and bodily experience. A common

example is that materials used in the manufacture of stone tools were chosen for their material qualities of being workable by knapping to form a sharp edge that is hard enough to be used repeatedly. Alternatively, soft stone was used for making shaped, smooth things. The location of suitable stone deposits was known and one example saw the evolution of flint mines in particular areas (Varley & Kumakura 1989). This understanding of the qualities of materials from particular locations implies a sophisticated understanding of the qualities of a raw material and its use for a particular purpose. This, however, should not be viewed as separate from the idea of cyclical flow. Vicki Cummings (2012, pp. 30-31) agrees:

> Ingold's basic point is sound and important: material substances are relational. Thus if we think through these ideas in relation to stone, it suggests that stones would have been understood in many different ways, but entirely dependent on their qualities and context.

For example, in relation to the steatite bowl displayed in Figure 2.15, the bowl exhibits a morphogenic relationship to the material. Its making very much reflects the character of the stone. Its rectangular shape reflects the natural cleavage lines of Steatite. Its making method of carving a roughly shaped block that was knocked off and then carefully tooled shows adaption to the relatively fragile nature of the material. Makers also understood that the material was not uniform and so made these bowls at the quarry site because they knew that they may well encounter a flaw in the material during making (*Knowing Stone* 2014).

Figure 2.15 - Steatite bowl, Orkney Museum, Orkney, Scotland, photo by author, 2014

Knowledge of the material characteristics of stone would have been gained through direct physical interaction in the context of a prehistoric world. Added to this physical interaction would have been culturally derived layers of meaning that we cannot now know. Even so, it remains possible that the idea of 'stone' may not have been a general category in the way that it is used now, but that an individual instance of a stone with its shape, composition, site of origin, usefulness may have been the repository of meaning. A modern example of this phenomenon is the use by Saami people of 48 terms for reindeer antlers, and, in the list presented by Magga (2006), there are 175 -180 basic word stems on snow and ice. These terms bind a number of our ideas into a single individual instance of the thing as a repository of meaning. So it is not unrealistic to hypothesise that prescientific British Neolithic people would have different understandings and definitions of different stones.

Clay is the common forming material for both my work and British Neolithic pots. However, like stone, clay is not a single material. Different clay compositions from different locations have inherent characteristics. How their meaning is constituted depends on their geological and geographic origins and

formation, how they are processed and their potential for making. Characteristics including plasticity, grain size, unfired strength, and extent of cracking during drying determine how they can be used and what can be made. Deposits of clay now, as in British Neolithic times, vary in their characteristics and composition primarily because of the rock from which they are formed. They exhibit many differences including workability, fired colour, vitrification temperature, resistance to thermal shock, and fired strength.

Gibson (2002) points out that British Neolithic peoples combined useful characteristics of sedimentary clay with additions of temper in the form of stones, crushed fired clay from broken pots, and possibly intended organic matter. It is assumed that this composition of clay body was discovered as a workable compromise between lower fired strength and the need to successfully make, dry, fire and cook with the pots they made without them cracking. In Orkney, a study (*Case Study: Grooved Ware at Barnhouse, Orkney* 2015) of the possible sources of clay and raw materials including temper (small rocks or shells or grit) in British Neolithic grooved ware showed that the area from which clay and tempering was gathered was quite wide. Five main types of tempering material were found to be included in the fabric of the pots. These were shell, igneous rock from different outcrops, and two common sedimentary rocks (Jones 2002; Jones 2005; Richards 2004).

It appears that one of the materials added for temper in pots was ground up shards from disintegrating fire-cracked gabbroic stone from Cornwall that was originally traded far from the point of archaeological discovery. Wood's hypothesis is that these stones were acquired to be heated in a fire then dropped into a pot of water to heat the water. In this process the stones became fire-cracked and eventually broke down (Wood 2004). The broken pieces were then ground up and added to local clay as temper for pot-making. The process of adding materials from other sources to the fabric of pots appears to coexist with movement of made pots as trade goods. Pots made from gabbroic clays of the Lizard peninsula in Cornwall have been found in settlement and enclosure contexts in Dorset and Wiltshire (Edmonds 1995).

If one takes the morphological view that making includes consideration of that which is made beyond its initial formation, then the use of a thing also becomes part of its making. On initial consideration, many British Neolithic things have at least one relatively unambiguous use; for example, a pot could be used to contain something for cooking or for storage. Archaeological evidence suggests that sometimes this was grain or even a kind of beer (Dineley 2004). In addition to their primary function, pots were also used in depositions of grave goods. As Pollard (2002, p. 27) notes:

> Individual design elements on vessels were apparently significant in their own right because of the associations/meaning they held, and these meanings were drawn upon in the act of deposition.

Other things had different purposes. For example, axes were used for cutting and chopping, arrowheads were used on the tips of arrows for killing animals or people, and stone bowls and grind stones were used to grind grain. There is however another kind of purpose beyond that which is evidenced in daily function. This is implied by the inclusion of material things in graves and what may be sacred places. Such discoveries imply there was a meaning beyond what we identify as the ‘function’ of the thing, for example in symbolising, establishing and maintaining relationships or spiritual practices. Edmonds (1995) argues that circulation of axes and Gabbroic pottery indicates that they had value beyond their nominal use.

Through considering the trade, use and material aspects of the life of Neolithic artefacts as uncovered through archaeological excavations, I find myself beginning to think about my own relationships with materials and their life. Arising from this, the following section turns to the material relationships and cycles found within my own making practice.

2.3 My Materials and Making

Things made from clay and fired have various material constituents. These include the clay and its inclusions, glaze and other components. There are also constituents that I call ‘immaterial’ components. These are the physical forces

provided by the maker in correspondence with the materials. Physical forces in this context do not arise from nowhere. They are a manifestation of the maker's mind and body that brings them into being. As such, these forces relate to the physical characteristics of the maker's body such as height, strength, age, and experience as well as the ideas, thoughts and emotions of the maker at play in the course of making. My understanding of making comes from the intimate relationship between my body/ mind and materials. I make for a number of reasons that I can recognise and possibly for some that I cannot. At a deep ontological level, I am driven by trying to understand myself and my relationship to the world through interaction with my materials. This manifests as a curiosity about how materials respond and questions as to what I can do with them. In my making, the 'What if?' question looms large and is my frequent companion. My response to this is to cooperate with my materials, to encourage something unknown to emerge through the mist of possibilities. As I have become more skilled at noticing, I see more and more subtly. The world has become a richer field of experience.

I have developed a strong relationship to the material things I encounter that draw my attention to their material qualities. As a result my world is full of things I have collected. These are things that mean something to me and that represent my relationship to the world. An example is my windowsills with their random assortment of things found and collected; a mud wasp's nest, a shark's egg, interesting patterned shells and rock formations, a delicate small bird nest on a twig, pieces of textured coral and more, as shown in Figure 2.16.

Figure 2.16 - Windowsill of collected things at author's home in Balmoral Village, NSW, photo by author, 2017

These kinds of things feed into my making through my visual and tactile senses. Bringing the outside material world into my immediate surroundings helps me connect with the world and it feeds my soul. In an interview with Nick Holt (2016), Mark Edmonds said:

> [W]e make sense of the world, tell the stories of our lives, through the things we make and use, those we give and receive, and the stuff that otherwise sticks to us. We shore up our uncertainties with objects that help us remember and which keep us safe.

These objects:

> …have biographies as complex as our own. Indeed, if some of them could speak, and if we could understand them, they would probably tell us that we are simply passing through their stories.

Through my making praxis, I undertake exploration of the world including the 'things that stick to me'. Exploring this aspect of my ontology through the act of making is a significant component of how I make meaning. The way I make

involves uncertainty. This arises not so much from ambivalence or doubt, but from the physical uncertainty that is inherent within my way of working in correspondence with materials. I am also curious as to where I will journey both personally and in my making. My intense relationship to materials and making embodies these ideas and in light of this I will now discuss my materials and my making practice.

Clay

I consider the starting point for the physical part of my making as the composition of clay bodies. These are made to match particular forming techniques and the results I am striving for. My working clay is compounded from found clay and bagged powdered materials. These are mixed in an old baker's dough mixer and left to age in old bath tubs for a year or more if possible (see Figure 2.17). Biological and chemical processes during aging make the clay more plastic and easier to work with.

Figure 2.17 - Bathtub for soaking clay and old bread maker's dough mixer used for mixing clay, Balmoral Pottery, NSW, photo by author, 2016

Formulating and mixing my own clay is crucially important to my practice for a number of reasons. Some of these are:

- I can adjust the formulation and character of my clay in the light of information gained from previous firings.
- I can alter the required qualities so they relate better to what I am making. These qualities include response to firing, plasticity, workability, green strength, and suitability for the various forming techniques I use.
- Experimentation and creative exploration are facilitated by the quick making of test clays when an idea strikes.
- Mixing my own clay produces less stable, less predictable results than do industrially manufactured products, and this uncertainty contributes to my making.
- The very process of mixing my own clay is extremely important because my contact with it and its response is intimately direct. It is the interaction of my body with the material that is the core of my making experience. Mixing my own clay is a way of maintaining and building on this intimacy.

As well as clay body formulation, my curiosity leads to the discovery and use of different forms of inclusions. The sources of inclusions are fairly diverse but not without consideration. Local rocks, ant bed stones, river bed rocks, road rubble, shavings from contrasting coloured clays and even my fired broken porcelain shards have all been used in my work as shown in Figures 2.18 and 2.19.

Figure 2.18 - Sandy Lockwood, mixing and kneading clay with stones inclusions, 2016

Figure 2.19 - Sandy Lockwood, Raw work showing a scatter of stones, 2016

I am very curious as to what melt tests show me of the qualities of these found materials individually and in combination. Some questions about potential inclusions are:

- What are the resulting qualities of using different inclusions?
- Do they melt or do they stay dry or do they soften at their edges?
- Are they contrasting to the colour of the surrounding clay?
- What is their grain size?
- Do they dominate or are they singular in nature and therefore restricted in use in any one piece?
- Do they show movement such as when ant stones or porcelain shavings are scattered across a table when forming, then are pressed into the start of a piece that is then to be further stretched?

Figure 2.20 - Sandy Lockwood, Rock melt tests. On the left of each image is the natural rock and on the right is the same rock after woodfiring, 2014

Figure 2.21 - Sandy Lockwood, Rocks & shards embedded in clay and woodfired, 2014

Because my relationship to making in clay is physically intimate and fundamental to my morphogenic approach, I often make last minute adjustments to the moisture content and texture of the clay before starting to make. There are no prescriptive rules in relation to this. More than anything, it just has to literally ‘feel right’ for what I intend to do. The relationship between the qualities of the clay, the making process, and myself is crucial in determining the path of making. Sometimes particular clay characteristics will just not allow me to use some making processes, and if I want to continue I have to change my making method, change what I make, or alter the clay formulation.

I understand making as a body movement interacting with a material, and this brings an implicit consideration of time. The result of this interaction captures a singular moment in time. The moment is gone forever, but the record of the

moment when bodily forces interact with material remains to continue as part of the flow of making. I am particularly pleased when the moment is rendered clearly visible. Some days nothing happens in the way of a new direction. But sometimes, as described by Ramachandran (2012), it is as though a light bulb has gone on. I can literally ‘see’ with my whole body what is to be done. Sometime this seeing arises within me and sometimes it comes at the direct suggestion of the material.

Making involves me in entering a co-creative morphogenic flow. I usually start making by wedging the clay I intend to use in order to make it as workable as possible. This is physically demanding work and it loosens me up both physically and mentally. As my hands move with the clay to wedge and consolidate it, I am getting in touch with the material that I know so well. The clay responds to my touch. It feels alive. My hands settle into known movements and rhythms. Experience has taught my hands what to do. How much clay I work with depends on what I am making and what construction method I intend to use. For example, when making stretched forms, there is a limit to how much clay I can pick up and stretch on the ground. It will tear if I pick up too much or if the moisture content and plasticity are not just right. Not enough clay picked up means I am not able to make the length of slab that I need. This process is a series of dynamic interactions between my body and my material. It is a flow that I have to be attuned to, and my body reacts subtly, often without conscious decision, but based on a history of knowing and remembering over years. This approach is an example of what Ingold (2013) terms working in correspondence with materials.

All my work is fired in wood kilns that I have designed and built. I began my making practice using a wood and salt kiln, and I have continued with this firing method ever since. One aspect of working in correspondence with materials is the fact that I have made many adjustments to the design of these kilns as I have learnt more about firing them. What I am trying to do with each firing also evolves, and this requires changes in kiln design. Each of my three wood kilns has been pulled down and rebuilt many times in order to change its design. In this context design is not abstract but practical, experimental and experiential. It

is a blend of technical understanding and intuition that is brought into being through physical skill.

Wood kilns are unique. They require continuous stoking throughout a firing that may last for days. They respond to stoking with sounds, smoke and heat in a way that invokes feelings, expressed by those who witness and participate in a wood firing, that it is some kind of metaphorical animal. Wood kilns have been historically referred to through animal metaphors such as ‘dragon’ or ‘ground hog’. A kiln’s response during a firing changes, often in unforeseen and unpredictable ways. This leads to the idea that each kiln has what could be described as an individual temperament.

Almost all of the senses are acutely and intensely involved in making judgements during a firing. Total involvement and focus is required. An accumulation of sensing and judging from previous firings that has been built up over time forms a corpus of bodily and tacit knowledges that is bought into play. This is a very good example of what Ingold (2013) calls ‘knowing from the inside’. It is a realm where experience and apprenticeship trump formal instruction in the task of learning how to successfully join and guide the flow of firing.

It is imperative that the kiln be packed appropriately in order for it to fire properly, so packing is not a simple activity. Within the kiln I have to make paths for the flame to travel optimally between the pieces. If they are too close together the flame will not travel in this space. If they are too far apart the flame will not bend and flow to contribute to the markings on the work’s surface. This is an instance where the spaces between things are as significant as the things themselves. As a result, I cannot just make anything and put it in the kiln. The sculptural works made within the context of this thesis are necessarily accompanied by other pieces. This arrangement allows for sculpting of the flame into a desired path. Thus, it can be said that firing my kilns begins with consideration of the shapes and sizes of what is to be made for a particular firing.

As well as sculpting the flame path, it is necessary to consider the fact that atmospheric and temperature conditions within the kiln are not uniform during firing. There are a number of atmospherically distinct areas in each kiln that require adaption of form, slip and glaze in order to produce a successful result. Packing work down in the firebox means high levels of risk for the work. This is the hottest and atmospherically most aggressive part of the kiln. Pieces may fall over, be hit by stoking wood, warp, crack, or become overly covered in ash and 'grunge'. The colour might develop uniquely well here or might be dull and lost. I feel a certain freedom and excitement working with this area because it invites a kind of 'risk all' attitude. The reward lies in revelation of completely and unpredictably new surface textures, colours and patterns. I also have to think particularly carefully of the flame path travelling through this area because errors here can detrimentally affect the firing outcome for the entire kiln. A mistake can allow insufficient or too much flow of flame into the area of the main chamber. Once the front firebox area is packed, then the main part of the chamber is loaded by placing the work on kiln shelves. This process is like assembling a three-dimensional jigsaw puzzle consisting of many interwoven constraints and priorities.

For any area in the kiln there is a choice between sculptural exploration and works in development that compete with potential pieces for upcoming exhibitions, as well as orders from galleries or customers. The solution of this conflict is challenging and never straightforward. The mental challenge of decision-making regarding flame path and competing demands for space adds to the physical work of packing, contributing to the lengthy kiln loading process which often takes two days.

I consider firing as a co-creative process. The kiln feels metaphorically like a live 'beast' to be respected and somewhat tamed but with a distinct mind of its own. Smells, sounds, heat and flames react to my movements in a choreographic pattern of moving together. As part of this 'dance' a number of parameters have to be constantly and simultaneously monitored. For example, decisions have to be made about stoking patterns, chimney damper and air supply settings, how much salt to add and when to add it. Decisions are

primarily organic and intuitive with some analytical input based on previous experiences and outcomes.

The characteristics (colour, texture, speed) of flame movement within the firebox and around the work indicate the level of oxidation or reduction in the kiln atmosphere which is vital at certain stages of the firing. Smell and visible smoke (see Figure 2.22) also provide information about the kiln's atmosphere. Even variations in the sound of the wood burning and sounds generated by the air flow in the kiln at high temperature help make up the 'picture' of what is happening and what might need to be done. Even with accumulated understanding and technological assistance, a kiln may on occasion become very difficult to fire without any obvious cause.

Figure 2.22 - Smoke and flame out of the chimney at high temperature, Balmoral Pottery, 2014

As well as engaging in intense physical interaction with the kiln during the firing, a log (see Figure 2.23) is recorded to show time, temperature read out from the pyrometer, atmosphere, cone melt, damper, and air inlet settings. At some

stages, the temperature, colour, and melt are also judged by looking in through the spy hole (see Figure 2.24). One sees glassy surfaces, melting cones, and colours that range from dull red, bright red, orange, yellow, 'liquid gold' and finally to blinding white glare above cone 10 (1300^0C) as the firing progresses towards the top temperature of 1320^0C or higher.

Figure 2.23 - Sandy Lockwood writing a log during the firing, Balmoral Pottery, NSW, 2014

Figure 2.24 - Looking at the Pyrometric cones and colour viewed through the spy hole indicating temperature, Balmoral Pottery, NSW, 2014

How a firing is finished has a critical impact on its results. Decisions need to be made as to when the work in the kiln is fired enough, how much ember to leave burning and how best to keep the atmosphere ’clean’ (oxidised) for a good colour finish. After the finish of stoking, the kiln is sealed with a coating of clay and sand.

During the three or four days the kiln takes to cool, all chances to make changes to the outcome of the firing have finally and completely gone. There is an emotional and philosophical letting go of the uncertainty of the whole process. I enjoy the cooling days. Because nothing more can be done, I use this time to recuperate and prepare myself for the mixture of emotions I will experience on opening the kiln. The results may be better than I expected, worse, or more commonly a mixture of the two.

The process of unpacking most clearly highlights the role of uncertainty and the boundaries of unpredictability in the wood fire salt glaze making process. Each kiln opening is a unique experience. The variety of results from piece to piece is unpredictable and there are sometimes results, for better or worse, that lie outside the range of imagination. It is the unpacking process that finally reveals where the flame actually travelled within the kiln, and what the atmospheric conditions were like in various areas of the stacks (see Figure 2.25).

Figure 2.25 - Sandy Lockwood, Two works made from the same clay and fired in the same firing but ending up looking quite different, Balmoral Pottery, NSW, 2014

Wood firing and salt glazing is an unambiguous example of the application of tacit knowledge within a morphogenic process. Successfully firing a wood kiln is a complex and subtle process. The only way to learn how to do it is to fire multiple times. To do this well it is necessary to co-operate with the kiln and its fuel. Such cooperation is a dialogue and a dance between natural forces described by physics, personal intuition, experience, and sensitivity to what is happening. It invites an attitude of openness to learning and seeing anew. Emotionally it demands taking risks, letting go, patience and perseverance. It is a dynamic relationship in which the person firing the kiln has to 'tune in' to the kiln to 'get a feel' for what is happening as the firing evolves. Guidance from an experienced person can be helpful when setting out to learn, but ultimately one must accumulate direct practical experience over a number of firings in order to gain a level of competence and proficiency that will enable one to manage a wood firing successfully. The level of control of this co-creative interaction is

limited and the most practical response lies in entering into correspondence with the constitutive elements in order to guide the evolving process. The purpose of accumulating such experience is to build up bodily knowledge to match articulated knowledge so they can be both applied to the task of firing.

Despite all its inherent challenges, the inclusion of a wood fired salt kiln in my making practice began and still continues because it produces unique surface, colour and textural variation which engage me so viscerally. It is a significant attraction that the limits of control over what happens in a firing also open the compelling possibility of results beyond anything I could imagine before I start.

Whilst my firing methods are very different to those of Neolithic makers, it is this method of firing that has enabled me to produce results that exhibit the metamorphosed, weathered, aged and worn surfaces and forms that have come to speak eloquently to me, and the representation of which is the basis of this thesis. Whilst there are differences in firing technology, the similarities in materials and making represent an important link between British Neolithic makers, myself and the things we make; it is their common look and common human origin that is the main focus of my investigation. I have compiled a table below (Table 2.1) to illustrate a number of visual similarities that I feel connect the work of British Neolithic makers and my work.

British Neolithic artefacts today	My madework
Worn & broken, corroded edges	Cracks & corroded looking edges
Pitted	Pitted, texture & ‘orange peel’
Effect of time and being buried	Effect of firing and salt
Marks of making	Marks of making
Evidence of hand	Evidence of hand
Strong sense of materiality	Strong sense of materiality
Patinated	Patinated
Variation in surface arising from materials used	Variation in surface arising from materials used
Edges suggesting non-material qualities	Edges suggesting non-material qualities
Colour variation	Colour variation

Table 1- Table of similarities between my work and British Neolithic artefacts

2.4 Contrast, Space and Assembly as Part of Making

Visual contrast enables humans to distinguish one thing from another. It is contrast in colour, shape and texture that allows us to distinguish ourselves from our surroundings and to distinguish between the different things that surround us. Recognition of contrast is a major contributor to our biological functioning and survival as a species. Contrast between night and day tells us when to sleep. Contrast also plays an important role in how we function culturally. Contrast between food and plate allows us to eat. Contrast between print and page allows us to read. In this general sense contrast is so much part of life that its importance is not often considered. Contrast can also be understood in a specific way as part of an expressive vocabulary. The expressive vocabulary of contrast is central to both my work and the works of British Neolithic makers. One current researcher using such an approach to British Neolithic work is archaeologist Cummings (2002). In her studies of Neolithic monuments in Wales and Scotland, she has identified possible reasons for the variety of deliberate uses and juxtapositions of contrast. She analyses the use of rough and smooth stones, contrasting colours and shapes, thickness, and height. Additionally, archaeologist Timothy Darvill (2002) considers the deliberate choice of colour in the construction of monuments and the manufacture of tools and pottery. The implication of their conclusions is that British Neolithic makers were aware of and used several aspects of contrast within their cultural and making practices.

Contrast is implicit in the decoration of pottery and other British Neolithic artefacts. A decorated area contrasts with an undecorated area of a pot, a bone tool, or a wooden handle. Lines in one direction contrast with lines in another. A raised coil of clay stands out against the body of a smoothed pot. Contrast is also a key element of my making. In my works contrast is used within forms. For example, dark elements are included within light clays or light elements within dark clays. Texture can also be used as an element of contrast within and between works. My use of contrasting pieces of white porcelain shards within orange or black coloured clay evokes for me the curiosity and wonder I experience when discovering shards in the ground at a dig. The contrast in colour helps one to see the shard in the dig and in my work.

As a reaction to heat and firing, some elements within a piece of my work may melt and change in colour differently to the surrounding material. This type of contrast is also evident in geological landscapes where different materials are discovered when digging through soil layers. Each is rendered more visible by contrast with the surrounding material. It is possible that particular rocks and clays were discovered by British Neolithic (and earlier) people noticing the contrast in colour and shine of particular minerals.

Another common element between my works and some British Neolithic works is the use of space between things. Contrast can also be created between the components of an assemblage. Differences in colour, texture and form can provide a basis for establishing contrast between things. This invites one to notice different aspects of the component elements. It presents an opportunity to see the assemblage as a whole and also a way to see individual components differently to how they would be noticed if viewed in isolation. Placement of the stones in British Neolithic sites such as in The Ring of Brodgar and the Stones of Stenness in Orkney shows the space between things and the location of things in space as important. When walking amongst the spaces created by solid stone I felt a powerful presence and tension or energy existing in the ‘space between’ that seemed as significant as the elements that made the composition. My experience of these spaces varied according to where I stood in relation to the circle. Figures 2.26, 2.27, and 2.28 show various aspects of the ‘space between’ in the Ring of Brodgar.

Figure 2.26 - Ring of Brodgar stones showing 'space between', Orkney, Scotland, photo by author, 2014

Figure 2.27 - Ring of Brodgar showing space between stones, Orkney, Scotland, photo by author, 2014

Figure 2.28 - Ring of Brodgar showing space between stones, Orkney, Scotland, photo by author, 2014

In some stone circles that I visited, the tops of particular stones in important locations in the circle were shaped to echo the horizon of the landscape seen behind. Colin Richards (1996) writes about hills being reflected in the situation of the stone in the Stones of Stenness (See Figure 2.29).

Figure 2.29 - Stones of Stenness reflecting hills behind, Orkney, Scotland, photo by author, 2014

Cummings and Whittle (2004, p. 87) comment on the use of space between the scale of a landscape and its relationship with monumental structures when they write:

> Early Neolithic monuments also play out a whole series of oppositions within their landscape setting. In the landscape oppositions were created between open and closed views, the coast and inland, and low-lying areas and the uplands. This effectively means that monuments created a place *in between* these oppositions [my emphasis].

At this larger scale, British Neolithic standing stone circles can be considered compositions with their orientation and layout related to the landscape and the celestial environment. Several writers point to the placement of stones in the landscape space, and space between monolithic elements as significant (Cleal, Rosamund & Pollard, Joshua 2004; Cummings & Whittle 2004; Cummings 2005; Henley 2005). Use of space between in monument construction is evidence that British Neolithic people were aware of space between as a compositional element, whether or not they named it in this way.

The use of space between in Stonehenge (Figures 2.30 and 2.31) is thought to serve astronomical purposes (Ruggles 1997) as possibly does the layout of space in Maeshowe that facilitates the winter solstice sun shining down a long corridor onto the back wall.

Figure 2.30 - Stonehenge showing space between that can reflect the celestial environment, Salisbury, England, photo by author, 2014

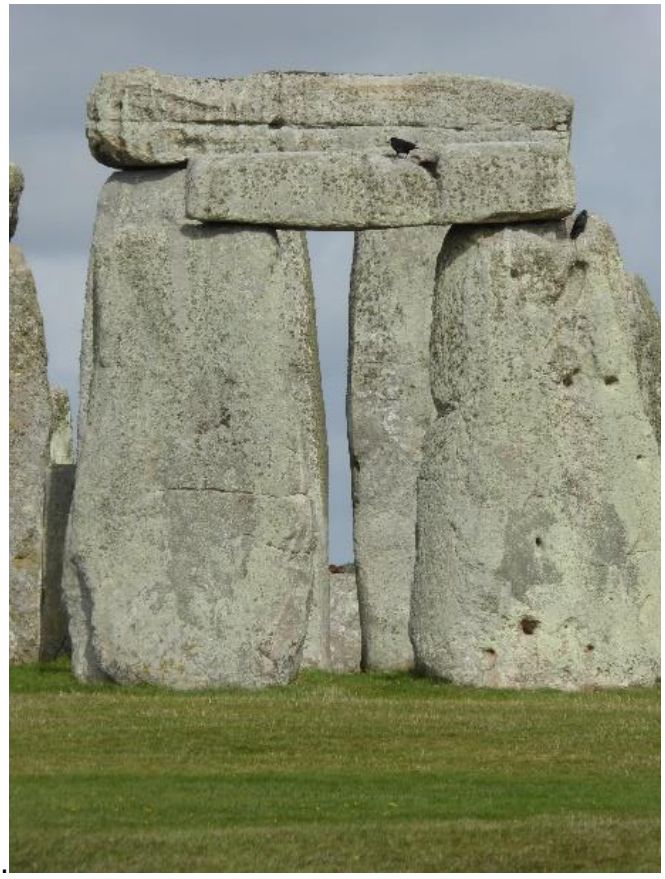

Figure 2.31 - Stonehenge, consideration of space between, Salisbury, England, photo by author, 2014

In my making practice, the establishment of relationships between things is important. These relationships can be read on several levels simultaneously and this is particularly important when setting up my madeworks for exhibition. Not only do the individual elements have to have integrity and something to say, the groupings have to produce a synergy and the whole exhibition has to cohere. One way this is achieved is through the deliberate composition of space between pieces on display. Such relationships can add to affective communication. They can also hint towards narratives that show the development of works or a thematic or typological organisation.

I frequently make pieces with the possibility in mind that they may be placed together to produce a kind of interstitial space. This can be a chink through which to see the world anew or some other imagined place that is perhaps far away and unknown. Occasionally this space can become a mysterious door through which to travel. When it works, the space provides an energy and resonant vibrancy between the elements that is more powerful than the actual pieces on their own. The importance of space between as a portal is illustrated by the use of the ‘doorway’ into another world as a familiar narrative device. In our culture some popular fictional examples of this range from books such as *Alice in Wonderland* (1865) and *The Lion the Witch and the Wardrobe (1950)* to televised film works such as *Outlander (2014)* and *Stargate (1997)*.

Utilising space between is one way I look for something beyond myself to provide new insight and perhaps new direction. The tracing of something intangible that arises from the visual physical relationships between things has become an integral part of my making as illustrated in these earlier works shown in Figures 2.32 and 2.33.

Figure 2.32 - Sandy Lockwood, 'Point of Departure Series', 2013

Figure 2.33 - Sandy Lockwood, ‘Escarpment Series’, 2009

This relationship can include the assemblage of elements such as an ‘axe’ piece articulated on a stand, with each element at some point touching in order to create shaped space, such as in Figure 2.34.

Figure 2.34 - Sandy Lockwood, ‘Axe Series’, 2015

Creation of space between is not always planned when forming my works. As illustrated in Figure 2.35, at times it is not until I am looking at ‘completed’ pieces that I intuit the potential for them to create a space between.

Figure 2.35 - Sandy Lockwood, 'Material Finds', 2014

Another aspect of space between is temporal space. The porcelain pieces in Figure 2.36 are intended to evoke a sense of movement like a dance over time and to use the space between them as a compositional element.

Figure 2.36 - Sandy Lockwood, 'Waving and Dancing Series', 2011

Other clay makers also consider space between as a compositional element. Noted ceramic artist Gwyn Hanssen Pigott said, in commenting on the use of negative space by Hans Coper in his 1965 exhibition:

> I was confronted by the spaces between the pots, which seemed to still the air between them. It was very quiet. This was inspiring. It was the stillness that impressed me. (Wells 2011)

Space between things also has a place in other art forms such as in music. John Cage (1961, p. 7) says, in comparing music to sculpture:

> Those that are not notated appear in the written music as silences ... [T]his openness exists in the fields of modern sculpture and architecture.

It is the act of assembling elements that facilitates the creation of contrast and space between. For example, the Ring of Brodgar could be considered a composition that is made up of component monoliths which in turn may be considered individually as works that have been made. In the absence of

evidence, one cannot know whether each stone in the ring had individual significance. It seems possible that the immense effort required to quarry, shift, and erect each stone, combined with an imagined British Neolithic world view, could have allowed for informal or formal ‘naming’ of each stone. This perhaps would confer upon it a level of significance as an individual thing as well as its significance as a component part of the whole ring.

Similarly, in making my work, each piece can be considered as an individual expression. Placing it in an assemblage then brings into being other relationships and meanings. I make a conscious parallel between placement of my works together in a group and the placement of monoliths in a British Neolithic circle or monument. In each case, meaning is carried by consideration of individual components, and also by their relationships within the assemblage, and finally by the assemblage considered as a single work. The act of placing things together can create an experience that is unique to the assembly.

2.5 Commonalities across Time

By considering my making practice as a coexisting flow of myself and materials mediated by relatively simple tools, it is possible to conceive of connections between my practices and those of British Neolithic makers and making. Ingold (2013, p. 21) writes: 'I want to think of making … as a process of growth. This is to place the maker from the outset as a participant in amongst a world of active materials.' His notion of the maker as participant in a cycle of material growth applies equally to British Neolithic and my making. This conception is based on physical evidence provided by retrieved artefacts and also on ideas of what may be biologically and culturally held in common with us now.

The materials of clay and stone I use are fundamentally similar to those used in British Neolithic times. The human body is to all intents and purposes identical, although my superior health status has most likely enabled me to make for more years and thereby to accumulate increased bodily knowledge. Additionally, I have articulated areas of knowledge not available to British Neolithic makers. Chief among these is the scientific knowledge that I can utilise

in my making. This being said, when I collect clay from the environment, scientific knowledge makes a relatively small contribution to understanding how the clay will react in the making process. It can help post factum in understanding what has happened, but the primary way that I know clay is to interact with it through the making process and to notice how it responds. And, as I have discussed, the role of 'noticing' is also similarly implied in British Neolithic times.

Having considered materials and making in the context of British Neolithic people and my work, I will now consider some wider commonalities that may exist. The reason for this is to identify what I sense as a deeper relationship between British Neolithic makers and me. This is the next level down in the metaphorical archaeological stratum. The binding commonality I propose is the idea that British Neolithic people and I share the trait of bodily intelligence. This intelligence is foundational to my understanding of what it means to be human and to make things.

Bodily intelligence as used here rests on the idea that the mind and body are one and that the work of intelligence is distributed around both the body and the brain. In contrast to the ideas of Descartes (1984 pp. 16-23), the idea of bodily intelligence does not separate consciousness and intelligence. Indeed, it is difficult to imagine human intelligence without bodily consciousness. Making from this perspective can be characterised as a bodily mode of thinking using a material vocabulary for expression. In the morphogenic view, the body is the originator of the physical forces acting on material expressed in the act of making. If one accepts this concept of bodily intelligence then one can say it is the body, which includes the brain, mind and memory that does the thinking. Indeed, Juhani Pallasmaa argues that the hand is an important site of thinking (2009).

Archaeological and anthropological evidence shows that, for all practical purposes, British Neolithic peoples were biologically modern. They were also culturally modern (Hill 2009; Zilhao 2007). This means it is reasonable to draw cautious parallels between myself and some aspects of how they related to the world around them and the materials they used and their making.

The areas where specific connections can be made are listed below:

- It is possible to conceive of their making as well as mine as a bodily way of thinking.
- Making probably included investigation of materials and the world around them, as it does with me.
- As with me now, there was a centrality of the physical body as a source of force acting on materials during making.
- British Neolithic skill and sensitivity to materials in making can be implied by examination of their artefacts.

Sensitivity to materials and skill play a central role that I hope is in evidenced in my making. The relationship between my body and the materials I use is evolving as my skill and ideas evolve and I encounter differences in material. I learn and develop new ways of interacting with materials in order to explore ideas or express ideas in physical form as well as to solve problems. I imagine the same could be said for British Neolithic people whether or not they framed their understanding this way. As skill and ideas and tacit knowledge evolve and differences in materials are encountered, it becomes necessary to evolve and adapt how one uses one's body and bodily intelligence. This holds for my practice as I think it would have for that of British Neolithic people.

British Neolithic making and my making also share a requirement for a certain level of physical strength to manipulate materials. A good example is the strength required to handle and manipulate plastic clay during the making process.

Three additional common elements of connection are the importance of skill and knowing, imagination and problem solving. Skill is embedded in making things over and over again using the same kind of material. There is a meme that equates expert skill with 10,000 hours of practice. Its origin is perhaps in a paper by Ericsson (1993) and others that considered the place of practice in acquisition of skill. Whilst this work focuses on the strong effect of hours of practice in relation to music playing, the point here is that making over and over

again over ten or more years is also most likely to develop skill in relation to use of materials.

Experience has led me to consider that some elements of this expertise lie in the areas of physical coordination, hand-eye coordination, haptic sensibility and muscular fitness that are synthesised into bodily intelligence. These are the channels through which I interact with materials in a bodily way. Similarly, the British Neolithic people used their hands and probably developed physical coordination, hand-eye coordination, haptic sensibility and muscular fitness because they interacted with materials both in forming clay things and in knapping stone and constructing monuments.

Directly interacting with materials to make things is a very human act. We feel through our hands and know the world through our hands. We understand materials through our hands. I relate to British Neolithic stone tools and pots as a maker. Sensing touch without even touching a thing is possible (Rodaway 2002). I can look at an artefact in a museum and have some sense of knowing how it feels, and the actions of the human who made, held and used it. Because of my experience, my hand can imagine moving where theirs did in the forming of their things. I can hold a stone tool in my hand, cradle a pot or touch a monument and connect with the sense of a human maker from a long time ago. I can imagine how this must have felt to them. The weight, the heft, the angle of the blade of a stone tool, the shape and weight and balance of a pot, the mass and smoothness or roughness of a stone monument. Long periods of interaction develop an underlying foundation of experience that manifests itself not only in what we call skill but also in a deep bodily knowing of the material used. Time spent cooperating with materials produces a number of interlinked outcomes that underpin and can transcend skill. It is the bodily knowing that arises from the development of skill that is important.

Making can begin with an imagined thing in mind. How this imagined thing is regarded is significant. In my practice I do not imagine the idealised thing in detail as an intended outcome. Imagined and experienced things exist in the background of making as kinds of sign posts. Making in this way begins by following a path towards something that is sensed and imagined in a general

way. This approach can lead to the evolution of something beyond imagination because the details of making evolve from within the act of making.

I believe imagination is another element that British Neolithic people and I hold in common. We cannot know what British Neolithic people imagined; however, given what is known about making directly with materials and their bodily similarity to me, I would suggest that British Neolithic people did exercise imagination in their making. It is difficult to think of the making of the Ring of Brodgar or Stonehenge without some sort of imagination. In making, problem solving is required when using materials that are not identical each time they are used. Clay has varying material qualities according to its composition and where it comes from. British Neolithic makers will have almost certainly encountered inconsistency in the materials they used. One example is that clay from a slightly different location in a pit may have characteristics that require adjustment by addition of sand or other material. Residue from flint 'mines' shows that, because flint was not uniform in quality, it was tested on site before being taken for use. These are both examples of problem solving. In my practice it is also necessary to problem solve because of changes in available material. For example, in recent times two important clays I have used over the last twenty five years have become unavailable because the clay pits from which they come have been exhausted. This has required me to problem solve in order to continue making. It can be seen, for the British Neolithic and my way of making, that problem solving is a common response to changes in material.

Thus far the thread of inquiry as unpacked in this exegesis has moved from initial interest in the look and feel of particular kinds of things and the role of time and weathering in their becoming. Subsequently this led to a connection between British Neolithic artefacts and my work, and to considering the materials they are made from. Investigating what they are made from and their making leads to the next question, which is: 'How do we appreciate, interact with and know these madeworks?' The answer to this appears to lie in two further strata to explore. One is touch and hapticity and the other is affective response. These will be addressed in Chapter Three.

CHAPTER 3: MORPHOGENISIS AND THE AFFECTIVE MESHWORK

3.1 Introduction

So far in this exegesis I have looked into the metamorphic impact of weathering in nature and on British Neolithic artefacts, and the analogous impact of woodfiring on my own madework. In Chapter One I introduced aesthetic understandings of weathering and erosion, and in Chapter Two I considered materials and making. This current chapter brings these two approaches together in the concept of the affective meshwork. My curiosity about *thinking through making* and *noticing what I notice*, particularly whilst making, has led me to read across a number of disciplines in order to understand what might underpin these experiences. For example, I draw on readings in philosophy (Guattari & Deleuze 2002; Koren 2008; Pallasmaa 2012), science and medicine (Damasio 1996; McGilchrist 2009; Ramachandran 2012; Tomkins 2008), and anthropology (Ingold 2013), all of which consider different aspects of how we sense, interpret and understand the world we inhabit. The exploration of these interdisciplinary readings has led me to develop a concept that I call an 'affective meshwork' which draws together two key concepts - a) meshwork, and b) the affective response - and these form the focus of this chapter. This concept and what I have learned from it informs the way my final body of work has been made. It provides a conceptual framework for understanding the complex web of relationships that underpin and influence my making and which will be explored in the next chapter.

3.2 Meshwork

The concept of meshwork has been explicitly laid out by anthropologist Tim Ingold (2013), drawing on previous work by Manuel De Landa (2000). Meshwork, according to Ingold (2013), is a way of seeing and interpreting the world, an entanglement of lines that carry a number of meanings and cannot be simply defined. This concept is useful because it provides a way of integrating our mental and bodily processes and experiences that cannot be easily quantified or articulated, but of which we are nonetheless intuitively aware.

In explaining meshwork, Ingold makes a distinction between meshwork lines, and those of geometry. In contrast to geometric lines, which can join two points or divide and separate surfaces, meshwork lines can be considered as abstract, existing in nature as elements conveying an underlying essence or life force. Meshwork lines exist as energies, forces and flows interacting in the material world. Their direction and shape arise from these interactions as they are laid down. Ingold summarises them as 'lines of movement and growth' (2013, p. 132). This conception of meshwork implies movement over time rather than static delineation or spatial representation. The lines of meshwork evolve and form knots and entanglements where they coincide. These knots and entanglements have loose threads extending from them that move off to form other entanglements and knots.

Some notable characteristics of meshworks arising from Ingold's (2013 pp. 125-141) work are that they embody randomness, fluidity, unpredictability, and potential for synergy, and they often produce metaphor. They are also emergent in character. That is, they are not derived from the application of, or bound by, pre-conceived rules, and in the context of making they come into being through the interaction of forces and material (pp. 20-22).

3.3 Affective Response

The second constituent concept is that of the affective response. This concept is founded on the idea of affect as a physiological phenomenon, as described in the work of Silvan Tomkins (2008). Psychiatrist Vernon Kelly (2009) writes that affect is a neurological phenomenon that evolved to enable humans to select and pay attention to one important stimulus amid the cacophony of inputs that assault our senses constantly. In developing the concept of affective meshwork, I have built on the fundamentally physiological idea of affect combining it with mental states such as thought, imagination and creativity into the idea of affective response. This is a response that starts out as affect and entangles thought, emotion, imagination and creativity as it arises.

3.4 Affective Meshwork

Within this exegesis I build on Ingold's conception of meshwork by adding to it the affective response and other mental and emotional processes to coin the term 'affective meshwork'. The affective meshwork forms a way of connecting the inner person, the bodily person and the material, and this will be considered in later sections. Combining external and internal elements into a single meshwork provides a powerful connection between all the constituent elements of my ontology and making process. It is something I test through practice.

The most motivating lines that I see as comprising my affective meshwork are imagination, memory, thought, creativity and curiosity. A way of visualising these lines is to think of pieces of string of varying colours that are entangled three dimensionally lying on the floor. There are ends hanging out, and knots and bits twisted together and parting. Sometimes where they touch the colours merge, or a piece takes the colour of a touching piece before moving off. Some pieces are there, not touching another piece. Now imagine that someone opens the door and a breeze blows the strings as they lie there. The meshwork will change shape. Some pieces will retain their contacts and entwining. Some will part. New contacts, weavings and knots and colours will be made, some pieces will separate from the mesh. The piece that was lying by itself is now touching another piece. Some pieces will no longer be in the mesh. The new meshwork will have changed colour and shape but it still remains a meshwork, evolving and becoming. It is at once existing, becoming, and dissolving.

In making, the threads of the affective meshwork represent my consciousness, unconsciousness, emotions, physical being, senses, imagination and thoughts. The meshwork is where these connections entangle in the creative narrative. The meshwork underpins making as an engagement of flows, forces and materials in correspondence to bring the madework into existence. Manipulating a plastic material, noticing its response under my hands and seeing what happens when it is exposed to fire and salt has provided me with a vocabulary for making that is a non-verbal language that arises out of my affective meshwork.

3.5 Touch, Hapticity and Sensing

For me, the experience of making originates in, and is characterised by, the interaction between my body and the materials involved in making. The physical nature of this relationship is important and it is mediated and led by touch and hapticity. It is the starting point for my search to understand what underlies my making process. This search has a significant though not exclusively phenomenological component. It is for this reason that I begin this chapter with a consideration of the place of touch.

Touch is central to the way I make. It is primarily through touch that I interact with clay. Touch tells me about the character and state of clay, and how far I can move clay without it collapsing. Clay responds to my touch, and my touch responds to the clay. My way of making is dependent on, and realised through, my body and touch. In my making, it is through touch that other senses are invoked and expressed. This relationship between bodies and touch has a long philosophical history. Mark Paterson (2007, p. 18) sees Aristotle's work as significant because it:'…opens up a pathway to consider the manifold senses of touch, including the somatic senses and the affective aspect of touching, each amenable to a phenomenological framework.'

As part of a phenomenological approach, architect Juhani Pallasmaa (2009) has expanded the idea of touch to include its underlying relationship to our other senses. Relying on evolutionary evidence, he comes to a biological explanation of this relationship when he writes: 'The senses are specialisations of skin tissue and all sensory experiences are modes of touching, and related to tactility' (2009 pp. 10-11).' The entanglement of touch with other senses means that, even if it is not consciously apparent, what we commonly call touch does not operate alone. Within the experience of making, I have noticed a particular relationship between vision and touch. Sometimes when I see a thing in the natural or made world I experience a simultaneous sense of what it would be like to touch it. This can include a haptic sense of what it would feel like to pick it up, turn it over, and rub my hand over the surface. My ability to do this is based

on an accumulation of haptic interaction with materials and madeworks over many years.

As part of ‘making sense’ of touch, Paterson (2007 pp. 5-14) describes ‘hapticity’ as consisting of the interaction between external senses and internal psychological processes. The sense of touch can arise from feelings of pressure, weight and movement. The interaction with a physical thing as it is pulled, pushed, stroked, lifted, or pressed generates a sense of what is being encountered. However, hapticity can also extend beyond what is sensed by the skin, to include muscular and proprioceptive sensing, as well as more inward psychological phenomena such as memory and imagination, which can in turn influence skin perception. Given that our senses are interlinked, and hapticity is broader than merely skin-sensing, vision can also contribute to the haptic assessment of a thing. When I view a stone tool from the Neolithic period in a museum behind glass, the act of looking at it provokes a haptic sense of its weight, its smoothness, its coldness. This experience is made all the more potent by having handled similar objects in museums and at archaeological digs. My senses literally feel the thing I am looking at.

A series of psychological experiments concluded that cross modal interaction exists between touch and vision, and this is based in our biology and perceptual processing mechanisms (Cinel et al. 2002). In these experiments it was shown that textures that were felt through touch were reported as having been seen even though the visual equivalent was not present. And conversely, textures that were seen were reported as being felt although the physical texture was not present. The idea of neurologically interlinked sensing is further supported by the work of neuroscientist Richard Morris, engineer Lionel Tarassenko and editor Michael Kenward (2005, p. 75) who write in relation to vision:

> We now know that under some circumstances visual cortex is an aid to tactile perception. One view of reorganization in blind subjects is as unmasking or strengthening previously extant connections and responses.

This understanding within neuroscience supports Pallasmaa's (2009, p. 101) view that:

> We are not usually aware that an unconscious experience of touch is unavoidably concealed in vision. As we look, the eye touches, and before we see an object, we have already touched it and judged its weight, temperature and surface texture. The eye and the hand constantly collaborate.

For example, having previously handled sand, seeing a pile of dry sand will give a pretty good idea of how it will respond if you picked up a handful and let it run through your fingers. Touch, then, is a relationship between senses and materials, a way of knowing through the body. This relationship to materials is further extended with the concept of hapticity.

Hapticity, in the expanded sense that includes invocation of memory and imagination, can be seen as both a phenomenon and a process that has the function of integrating ways of knowing and being. This process connects immediate tactile and proprioceptive input to inner bodily and psychological processes to help make meaning of the current experience. This process also connects bodily and mental memory and imagination, to integrate immediate experience with the past and even project to the future.

It is my experience that the haptic facility can be developed and strengthened through practice. Accumulation of experience fosters subtlety of sensing and responding, as the fundamentals of the interaction are mastered, and the mind and body take in information and respond with nuance and finesse. The subtlety and sensitivity of my haptic facility is more acute and well-developed than it was when I began my making career, and has developed with experience. I can now accurately judge the moisture content of a piece of clay by squeezing, pinching and pushing my thumb along the surface. This will also tell me the grain size, the plasticity, and the likely textural qualities this clay might offer. These combined experiences give me an intuitive sense of what I can do with that piece of clay. This intuition can be understood as the combination of previous interactions that combine bodily sensing, learning, and thinking, which work

together to develop an integrated foundation that can be described as *bodily knowing*. Ingold points out that we know more than we can say and that this knowing can be expressed through ‘telling’ rather than ‘articulating’. He describes this ‘telling’ in the following terms:

> We can *tell* of what we know through practice and experience, precisely because telling is itself a modality of performance that abhors articulation and specification. (2013, p. 109 - authors emphasis)

One example of the development of haptic capacity comes from my experience of teaching students who have previously worked as chefs and bakers. I have noticed that these students commonly have a well-developed haptic sensibility that they bring to working with clay. For instance, they easily learn the subtle technique required to roll an even coil of clay. This task requires a gentle and full-handed movement with just the right amount of subtle pressure. In the beginning it is surprisingly difficult to produce an even round coil and these students master the technique quite quickly. It seems to me that their haptic sensibility and resulting skills have been developed through handling and manipulating food materials. Haptically-based skill has come from their previous experience in another field and has transferred into their clay making skills.

Hapticity plays a frequent role in our daily lives. It can be applied in many areas. This is illustrated in Figure 3.1 by Australian cartoonist and cultural commentator, Michael Leunig.

Figure 3.1 - Michael Leunig, 'The Lost Art', cartoon drawing, *Sydney Morning Herald*, 26 Oct 2013, Leunig.com

As an experienced maker, I have a particular advantage in relating to works in clay made by others because my eye can follow a haptic path visible through sensing their making. I can sense a hand lay here, a folding there, a certain pressure or force here, an emerging crack there. My haptic experience allows me to imagine the emergence of the madework arising from the material via the maker's hand. For example, the works of artist Simon Carroll (see Figure 3.2) and those of Gilberto Zorio (see Figure 3.3) show the movement of hands and fingers making, producing textural qualities that I understand and aim to achieve in my work. My own haptic experience has allowed me to know these works through sensing their making and imagining the maker's hand in action. My senses feel the clay as if I were the maker. I have noticed a cascade of responses arising from touch and hapticity when I experience madeworks such as these. Visual evidence of movement, from the original making and from the action of fire and glaze, is present. Guided by touch and textural qualities, form and edges are felt and 'seen' haptically. Memory and imagination can be evoked.

Figure 3.2 - Simon Carroll, 'Basin', date estimated as 2000-2003 by the decorative arts curator at V&A, catalogue no. C.62-2015, ceramics, photo by author in Victoria and Albert Museum, 2014

Figure 3.3 - Gilberto Zorio, Detail of 'Terracotta Circle', 1969, ceramic, Tate Modern, photo by author, 2014

Likewise, when I look at one of my own madeworks with atmospheric flame marks and runny ash (e.g. Figure 3.4), I can picture the ash and salt floating through the kiln at varying speeds before settling on surfaces, and I can imagine them melting and running in a kiln induced weathering. This is a kind of generative process that begins with haptic touch combining sight and entraining memory and imagination. My previous and current experiences are synthesised into a new 'knowing' of the work.

Figure 3.4 - Sandy Lockwood, Quern Series X, woodfired and salt glazed porcelain, 2015

I experience the same haptic response evoked by visual qualities when I encounter Neolithic artefacts, even though I have not made them or seen Neolithic people making them. In this case, through bodily memory of my making experience combined with my imagination, I have a haptic sense of both the material qualities of the thing and its making. Through this haptic knowledge I am able to sense the movement of a maker's hand over surfaces and within materials to produce artefacts like these. It is easy for me to envisage and sense how a person would sit, hold their body, move their hands, move the clay. The image in Figure 3.5 illustrates the movement the hand must have made to create the zigzag lines around the piece. It is not difficult to imagine

one’s hand tracing these lines with a sharpened stick. This sensing seems to span time as I can visualise this action clearly.

Figure 3.5 - Neolithic pot, ceramic, Scottish National Museum, Edinburgh, photo by author, 2014

The example of corded ware in Figure 3.6 shows the haptic quality of rope impressions in diagonal lines, and also in the thicker coils that run horizontally around the piece representing thick ropes. I can easily imagine the maker engrossed in the process of making and imagine how the body was held and oriented as hands pressed the cord into soft clay. This quality is not diminished by the striking dark coloured repair work undertaken by conservators. In fact this adds to the telling of the piece.

Figure 3.6 - Cordoned Urn with impressed decoration, C 2000-1500BC, The Potteries Museum, Stoke on Trent, UK, photo by author, 2014

Another example of how haptic senses can be evoked visually is shown in Figure 3.7, where it appears that the maker's finger was pressed repetitively around the pot to form a decoration. One can envisage the action that the maker made with his/her hand and finger as s/he impressed the soft clay of the pot whilst turning it around. This is an easily sensed haptic movement that is familiar to me. The intimacy of such a process is illustrated by the fact that in many similar patterns, the actual imprint of the maker's finger nail is visible.

Figure 3.7 - Finger impressed Neolithic pot, Blythe House, London, photo by author, 2014

Textural qualities that show the result of making methods and subsequent use are seen in the surface of a grain grinding stone displayed in Figure 3.8. The action of grinding can be evidenced in the markings on the surface. In this case the movement is not a direct one of the hand shaping material, but a haptic connection that flows between hand, tool and stone. The texture created by the moving parts in the grinding process captures this flow.

Figure 3.8 - Grinding stone, Paphos Archaeology Museum, Cyprus, photo by author, 2014

Larger scale creations can also evoke a haptic sense, as illustrated by my earlier discussion of British Neolithic standing stones such as the Ring of Brodgar (see Figure 3.9). In the windswept, treeless landscape stand these people-made masses, larger than human scale, powerful in their circular groupings. Approaching them visually at first, I was in awe of their scale and structure as they claimed their space in the landscape.

Figure 3.9 - Approaching the Ring of Brodgar, Orkney, photo by author, 2014

As I moved closer (see Figures 3.10 and 3.11), their mass and volume was sensed viscerally, and their weathered surfaces were experienced haptically and kinaesthetically before I was close enough to touch them. Even before I touched the stones, this combination of sensory experiences contributed to my working definition of the affective meshwork.

Figure 3.10 - Approaching the Ring of Brodgar, Orkney, photo by author, 2014

Figure 3.11 - Standing Stones at Ring of Brodgar, Orkney, photos by author, 2014

Finally in reach, the Standing Stones invited direct touching. The sense of touch helped me to understand the stones directly, and evoked an affective response that contributed to my knowing. I reached out and felt their roughness and smoothness, warmth or coolness, and resistance to pressure. There were also the connected experiences of air temperature, breeze, brightness of the sun, and smell of the sea. These sensings evoked an affective response in me that triggered memories of past experiences of ruins and stone. Imagination, wonder and curiosity also meshed with my affective response as I thought about how these stones were made, their makers, and the power they evoke. Similar experiences have shown that vision is a kind of encoding of my haptic experience and history, and the act of touching adds another dimension that modifies the flavour of the original visual experience.

Touch, for me, is importantly involved in the sensing of made things in the environment as well as sensing the materials of things in the process of making. In Pallasmaa's (2000, p. 78) words: 'Touch is the sensory mode which integrates our experiences of the world and of ourselves.' The examples of interacting with Gabbroic clay and standing stones provide insight into how touch and hapticity play an important role in the generation of an affective response that becomes woven into my affective meshwork. The next section of this chapter explores the concepts of affective response and affective meshwork in more theoretical detail.

3.6 Affective Response and the Affective Meshwork

Affect

A common usage of the word 'affect' is as a synonym for emotion; however, the range and sense of the meanings available in just two dictionaries demonstrate how varied a field the term occupies. The etymology comes from the classical Latin *'Affectus'* referring to a mental or emotional state or reaction. *The Oxford English Dictionary* (*Affect* 2017b) has a slightly broader scope in that it includes also inclination, sensing and feeling. In addition, this edition of the dictionary

(*Affect* 2017a) hints at a more radical meaning, that it is: ‘The manner in which something is physically affected or disposed; spec. the actual state or disposition of the body.’ Within the fields of critical and theoretical writing, as well as within psychology and neuroscience, there is a common thread that characterises affect as something primal and physiological.

In the context of cultural studies, Gregg and Seigworth (2010 p. 1) have defined affect as:

> …the name we give to those forces – visceral forces beneath, alongside, or generally other than conscious knowing, vital forces insisting beyond emotion – that can serve to drive us toward movement and extension.

Another aspect of the primal nature of affect is described by Simon O’Sullivan (2001, p. 126) who, in considering the aesthetics of affect writes:

> Affects are moments of intensity, a reaction in/on the body at the level of matter. We might even say that affects are immanent to matter ... Indeed, you cannot read affects, you can only experience them.

One way to approach the concept of affect is through psychology, as explored by researchers such as Silvan Tomkins (1984). Tomkins describes affect as a physiological phenomenon that orients our attention towards something important, either 'good' or 'bad'. Of particular interest for this project is his sub-category of affect, 'interest-excitement.' It is this interest-excitement drive that could be considered the provider of curiosity and motivation in relation to making, creativity and the affective meshwork. Philosopher Brian Massumi’s (1995) conceptualisation of affects as intensities shares something in common with Tomkins’ (1984) theory of affect. Importantly, Massumi goes one step further than Tomkins by suggesting that affect occurs across multiple senses and emerges before it can be recognised by these senses.

Maurice Merleau-Ponty also alludes to the idea of affect as a way of experiencing the world through multiple senses simultaneously, and he notes

that this idea ‘opens onto another type of intelligibility’ (2005 p. 12) or, as I see it, another way of knowing and understanding. Whilst the process may be difficult to describe, the experience and understanding are nonetheless real. The body senses the world at a fundamental level, initially producing an affective response. In Massumi’s (1995) schema this affective response happens first, and then the mind and body take this and produce information that is processed. Arising from multiple sensory experiences, affect provokes a variety of responses. Some are autonomic and physiological, such as increased heart rate and motivation to physical action. I build on these ideas of affect to add other responses that are less directly physiological, such as invoked memory, imagination and curiosity. This is because it seems to me that to what, and how, one responds depends at least in part, on one’s personal history. I therefore use the term ‘affective response’ to refer to the arising of affect as already joined with a variety of other responses. This is not a one way transaction where a response is stimulated by the environment. McGilchrist (2009, p. 163) concludes: ‘…we never just “see” something in the sense that a photographic plate receives rays of light. In the real world we bring a lot of ourselves to the party. And this means gaze alters what it finds.’ Affective response in this context happens within the whole person and is expressed through the whole person phenomenologically and ontologically.

In addition to the various views on the emergence and composition of affect, I am proposing the possibility that affect arises already entangled in an affective meshwork. Affective responses reach simultaneously in several directions, both inward and outward, and during this process they enmesh with other body/mind phenomena to form what I have called the affective meshwork. This meshwork that enmeshes sensing, feeling, imagining, thinking and remembering is happening in an ongoing way to support our constant adjustment to being in the world. The individual components of this meshwork are experienced concurrently and mixed together. To provide a flavour of the contents of my affective meshwork I have poetically listed some of its components below.

touch and hapticity reach touch memory touch haptic orientation and capacity

sensing feeling looking emotion thought imagination imagining

personal experience body bodily phenomena bodily thinking

physical relationship with materials hands vision

creative process connection context interaction with the world

knowing experiencing madework memory inclination mental state

contemplation explicit judgement curiosity aesthetics logic perception

conscious subconscious unconscious knowing judgement that is not conscious

underlying neural connection attention and expectation thinking remembering

biology history culture learning practice individual personal history

world events sensory-perceptual interactions essence intuitive

correspondence with materials physical sensation visceral response

known elements cognitive imagination analytical imagination

ontological history materials

intimate form of physical contact physical proximity

intersection between physical and imagined worlds

ganseigaku wabi-sabi rasa conjecture

intensity uncertainty ethereal quality

flows and forces morphogenesis

meshwork

.

Affective meshwork is a proposition about a way of sensing and engaging simultaneously with our understandings of inner and external worlds. The function of the affective meshwork is to provide a connection to the world, and it underpins the way we know and respond to the world. Through it we intuitively and individually sense the ‘essence’ of the world and the things in it. This sensing is an important part of the creative process.

In encountering madeworks that embody time, intensity and proximity, and where a maker enters into correspondence with materials, there is the probabality of an affective response arising in the viewer as if they are experiencing a living energy of some kind. Such a response is important to me in my making and also in what transpires when I experience Brithish Neolithic madeworks. In a related discourse, archaeologists MacGregor (1999) and Cummings (2002) emphasise the importance of touch and hapticity in understanding Neolithic artefacts in the present. Cummings (2002, p. 249) argues:

> [T]hat texture may have been a fundamental part of the experience of objects and monuments, and may have imparted meanings and messages to those who came into contact with them. In particular, transformation of differing textures may have been a crucial metaphor in the Neolithic.

The idea of touch being important to understanding Neolithic artefacts hints at the place of affective meshwork in the archaeological context. It also resonates with my belief that Neolithic people possibly had affective meshworks somewhat similar to mine. Given our common humanity and physiology, and looking at the affective impact of British Neolithic people’s madeworks, it is easy to imagine that their affective meshworks bear some similarity to my own. It seems to me that these imagined common affective meshworks form a connection between myself and these people that reaches from their time to mine. When I am engaged in experiencing their madeworks it is as if the time between then and now disappears. Phenomenologically I experience a meshwork that entangles the thing before me simultaneously with memory and previous experience. In the case of British Neolithic pots, my remembered bodily experience of making

is projected back in time, I imagine a prehistoric maker in action, and this imagined maker's action is sensed by me in the present. This experience feels to me that perhaps some strands of the affective meshwork are so temporally long that they connect through history. It may also be that some parts of the affective meshwork feel as if they stand outside time because various aspects from different times are experienced simultaneously.

3.7 Western Philosophical Perspective

Archaeology provides an analogy that helps me explain this relationship across time and place further. There is value in 'digging deeper' to uncover something of the philosophical ideas that contribute to explaining the role and significance of the affective meshwork. Ancient philosophical writing tended to focus on the role of senses and sensing, and the idea of 'aesthetics'. Philosophical consideration of the senses in Western culture reaches at least as far back as Ancient Greece. Plato (5th to 4th BC) (2013 p. 19) described his understanding of how the sense of vision works:

> When the light of day surrounds the stream of vision, then like falls upon like, and they coalesce, and one body is formed by natural affinity in the line of vision, wherever the light that falls from within meets with an external object. And the whole stream of vision, being similarly affected in virtue of similarity, diffuses the motions of what it touches or what touches it over the whole body, until they reach the soul, causing that perception which we call sight.

This is a very early example of what I call a meshwork approach to understanding where multiple strands of senses interact. The sensing body responds to both touch and vision simultaneously and perception links them together. This understanding of the relationship between the body, mind and material objects seemed to have been common in Ancient Greece, and marks the temporal half-way point between Neolithic times and today. Paterson (2007, p. 81) describes Aristotle's conception of *aesthesis* as 'the sensory faculty that

undergoes alteration'. It is the area of sensing within aesthetics that intersects with the more contemporary idea of an affective meshwork.

Writing in the Eighteenth century, German philosopher Alexander Baumgarten (1961) used the word 'aesthetics' in his writing on poetry. He separated ideas and thoughts (logic) from sensations and feeling (perception). This approach echoes the earlier work of Descartes (2013) who considered the body as separate from the mind or soul. However, this separation of the body from the mind, in the light of modern science and from the perspective of meshwork, seems too reductive. As understood now, the borders between mind and body are blurred and ambiguous. The mind is now being considered as not confined to the head (Ramachandran et al. 1998) but encompassing the whole body.

Writing alongside (but not in agreement with) Baumgarten, Immanuel Kant (2007) explored the philosophy of art. He developed guidelines for aesthetic thought, and considered the conditions surrounding sensory perception in general, including those of art and nature. In particular, Kant (2007, p. 203) emphasised the subjective experience of aesthetics. In doing so he formalised and expanded Baumgarten's ideas:

> The judgement of taste is not a cognitive judgement, and so not logical, but is aesthetic – which means that it is one whose determining ground *cannot be other than subjective* [emphasis in original].

More recent philosophers have also made contributions that link aesthetics and affective experience. Thomas Alexander (1987), building on John Dewey's work writes:

> Because aesthetic experience is distinctively capable of grasping experience in general as a process of articulation or growth, it succeeds in providing the basis for overcoming any dualism which separates man from the world or from his fellow human beings.

Inhabiting the world in the phenomenological sense implies an energetic, lively, unifying sensory flow between 'out there' and 'in here' in a way that means that

boundaries are not always precisely clear. Senses are simultaneously intertwined because they all lie in the same body that experiences the world. Understanding the senses as separate, whilst scientifically useful, remains a utilitarian explanatory process that does not negate the unified flow of perception that one experiences in an ongoing way.

Whilst the term ‘aesthetics’ is not synonymous with the affective response, there are aspects of thinking about aesthetics that do touch on my proposition of affective meshworks. On examination of the definition of aesthetics in dictionaries such as Collins Australian Dictionary (Aesthetics *Aesthetics* 2004), Cambridge Dictionaries Online (*Aesthetics* 2015), Oxford English Dictionary Online (*Aesthetics* 2011), Merriam-Webster Dictionary Online (Aesthetics 2004), it is only the latter that mentions the senses in one of its five definitions as: ‘responsive to or appreciative of what is pleasurable to the senses’. Designer, architect and author Leonard Koren (2010) lists various meanings of the term ‘aesthetics’ from a contemporary view based on common usage.

These are summarised as:

- the superficial **appearance** of things
- a **style** or a sensibility
- a synonym for **taste** and the tasteful
- a branch of Western philosophy concerned primarily with the nature of art and related phenomena; the **philosophy of art**
- a coherent statement of opinion, belief, or attitude relating to some of the underlying principles of art, beauty, and/or related subjects; a philosophical **thesis or exegesis**
- a synonym for **artistic**
- a synonym for **beauty** or the beautiful
- a profession devoted to the **beautification** of the human body
- a **cognitive mode** in which you are aware of, and think about, the sensory and emotive qualities of phenomena and things
- a **language** used and understood by the community of people who make, commerce in, and appreciate art, design and the like

Koren (2010, p. 46 and p. 53) concludes:

> In this meaning it is the *thinking about* – the rumination – that distinguishes 'aesthetics' and the 'aesthetic' from the merely sensorial or hedonistic. *Sensory* here refers not only to the sensations of touch, taste, smell, sight and sound, but also to 'cerebral sensations'... The *sensory and emotive qualities* can be abstract ...or they can be very particular ... that all of what we refer to as 'reality' is an essentially aesthetic phenomenon. Virtually everything we know about the world, except that which is genetically encoded, comes to us though our senses and is then intellectually processed in one way or another [author's emphasis].

Koren's definition of aesthetics connects to my description of affective meshworks. Koren includes the cognitive and analytical imagination as well as sensing-feeling components of aesthetics. Whilst Koren may see the cognitive and sensing realms as separate, I see them as interwoven and interdependent. The affective meshwork integrates sensing and thinking within a phenomenological and ontological whole. Following intertwined understandings of the relationship between body, mind and perception, the affective meshwork is intended as a concept that reflects the flavour of lived experience. It is disposed toward phenomenology and ontology. Whilst the affective meshwork is complex and ever-evolving, it is not proposed as a 'black box' that cannot be explored. My making experience leads me to believe that complex relationships between the threads of an affective meshwork are amenable to examination and description, if not quantification. A very useful aspect of such an approach is that it allows consideration of multiple simultaneous phenomena flowing from within and from without. When trying to make meaning out of experience it facilitates an open, inclusive orientation to inquiry.

3.8 Eastern Philosophical Perspective

It has been argued that ancient Asian cultures did not employ the word 'aesthetics' or its equivalent. Professor of philosophy, Richard Shusterman

(2006), points out that appreciation of the 'arts' in the Ancient Asian cultures of China and Japan included a large number of fields such as calligraphy, tea ceremonies, flower arranging, mathematics, and various forms of martial arts. Shusterman (2006, p. 240) argues that the introduction of Western philosophy in the nineteenth century brought the idea and the term 'aesthetics':

> Some Japanese aestheticians, however, who are aware of Baumgarten's original meaning of aesthetics, and sensitive to the fact that aesthetics is much more than the study of beauty and that much contemporary art has little to do with beauty, have recently proposed that aesthetics be translated as 'ganseigaku' – the science of sensory perception. Several Japanese scholars are also critical of the way that the dominant occidental ideology of the aesthetic and fine art has tended to declass traditional Japanese arts (such as the art of tea and calligraphy) and relegate them to the realm of geidoh (ways of culture) while reserving the status of art for Western-style art forms.

Despite these tensions in terminology and translation, there are significant aesthetic concepts from China and Japan that inform the framework of the affective meshwork. The first of these is wabi-sabi.

Wabi-sabi

When undertaking research to better understand my reaction to weathered things and British Neolithic artefacts, the term wabi-sabi was brought to mind. Wabi-sabi as a term in Western discourse has been derived from two separate Japanese terms, Wabi and Sabi. In his book *Wabi-Sabi: for artists, designers, poets & philosophers*, Leonard Koren (2008) popularises concepts of Wabi-sabi for Western audiences. Koren's approach relates to the appreciation and understanding of the look and feel of things (material qualities). These include the aged, patinated, weathered, irregular, textured, asymmetrical, natural qualities of surfaces and forms. As I have explained, identification of these material qualities directly informs how I approach the surfaces of Neolithic

artefacts and my own madework. Koren (2008, p. 41) includes material qualities as components of his interpretation of wabi-sabi which focus on 'the suggestion of the natural process, irregular, intimate, unpretentious, earthy, murky, simple'. Koren (2010, pp. 69 -72) describes the concept of wabi-sabi as follows:

> [I]n the Japanese aesthetic (beauty, style) realm, asymmetry seemed just as desirable as symmetry. Old things, especially old things with 'character', seemed to be more valued than new. Subtlety was revered, ostentation disdained. And nature, not technology, was the informing design metaphor.

Koren was not the first to introduce this concept to Western audiences. In my experience, this term has been used informally since the 1980s in Australia and other Western countries, most particularly in the fields of wood firing and ceramics education. Within this context it has vague and varied meanings and uses. Although not clearly defined, the term has persisted and seemingly increased in usage. A recent Google Scholar search I undertook in early 2016 produced 3390 hits in English alone. The reason for the persistence of this term in the ceramics context may be that it somehow serves a useful purpose by encapsulating a particular sensory experience and conveys a meaning for which there seems to be no concise English equivalent.

The evocative character of wabi-sabi (Varley & Kumakura 1989, p. 205) in ancient Japanese writings is referred to thus:

> When looking at autumn mountains through mist, the view may be indistinct but have great depth. Although few autumn leaves may be visible through the mist, it is alluring. The limitless vista created in imagination far surpasses anything one can see more clearly.

An illustration of this sensibility from the field of architecture is provided by Pallasmaa (2000, p. 82):

> A distinct 'weakening' of the architectural image takes place through the processes of weathering and ruination. Erosion wipes away the layers of utility, rational logic and detail articulation and pushes the structure into

> the realm of uselessness, nostalgia and melancholy. The language of matter takes over from the visual and formal effect and the structure attains a heightened intimacy. The arrogance of perfection is replaced by a humanizing vulnerability. This is why artists, photographers, filmmakers and theatre directors tend to utilize images of eroded and abandoned architecture to evoke a subtle emotional atmosphere.

I see the term wabi-sabi as useful for describing the material qualities of a variety of things in the world. And it informs my understanding of the affective meshwork, extending our bodily responses out to include relationships with material objects. The salt and biologically weathered timber from an old oyster bed (Figure 3.12), a teabowl patinated by woodfiring (Figure 3.13), and a piece of rusted metal exposed to the sea in a harbour (Figure 3.14) all show material qualities described by the concept of wabi-sabi.

Figure 3.12 - Sandy Lockwood, Weathered timber that has been eroded by the sea and worms, originally from old oyster beds, South Coast, NSW, author's collection and arrangement, 2014

Figure 3.13 - Sandy Lockwood, 'Ashpit Teabowl', ceramics, author's collection, 2016

Figure 3.14 - Rusted metal at Halong Bay, Vietnam, photo by author, 2002

Rasa

In Indian aesthetics the word rasa offers another perspective that can contribute to and extend my understanding of the ‘affective response’. The term ‘rasa’ originated in the 4th Century in relation to Indian art. It is the essence or 'rasa' of an object which evokes curiosity, imagination and conjecture. The Oxford English Dictionary defines rasa as:

> Essence, sentiment; *spec.* (in Indian aesthetics) the inherent sentiment of an artistic work and the aesthetic impression conveyed by this work ... a particular sentiment or aesthetic impression to be conveyed.

Neuroscientist, Vilayanur Ramachandran (2012, p. 100), interprets the word rasa as: ‘capturing the very essence, the very spirit of something, in order to evoke a specific mood or emotion in the viewer’s brain.’ He takes the term beyond traditional use and develops a framework for applying neuroscientific ideas to the visual arts. Ramachandran argues that rasa is one possible indication of a neurological foundation for art-making and appreciation. Whilst the ancient idea of rasa originally related to theatre or poetry, it has come to be adapted and used in Western discussions of aesthetics more generally. In the context of my discussion here, it can be characterised as a connection between aesthetics and affective response. Rasa is a way of describing how the viewed madework produces engagement through metaphorical evocation of an affective response. It seems likely to me that the experience of rasa has been in evidence in various forms from very early in human history.

The following images illustrate various art works that encapsulate the idea of rasa. They are not photo realistic in intent or execution, nor are they symbolic. I see them as showing the essence of the subject under consideration: rhinos fighting (Figure 3.15), the kangaroo (Figure 3.16), the sleeping person (Figure 3.17), and the traffic on the harbour bridge on a rainy day (Figure 3.18).

Figure 3.15 - Unknown artist, 'Fighting Rhinos', cave drawing, Palaeolithic era approx. between 30,000 and 32,000 years ago, in the Chauvet Cave, France, source: http://www.visual-arts-cork.com/prehistoric/chauvet-cave-paintings.htm

Figure 3.16 - Unknown artist, 'Kangaroo', Aboriginal cave painting, Arnhem Land, Northern Territory, Australia source: http://tonywheeler.com.au/arnhem-land-aboriginal-art

Figure 3.17 - David Hockney, drawing, date unknown, source: http://d2jv9003bew7ag.cloudfront.net/uploads/a-David-Hockney-drawing.jpg

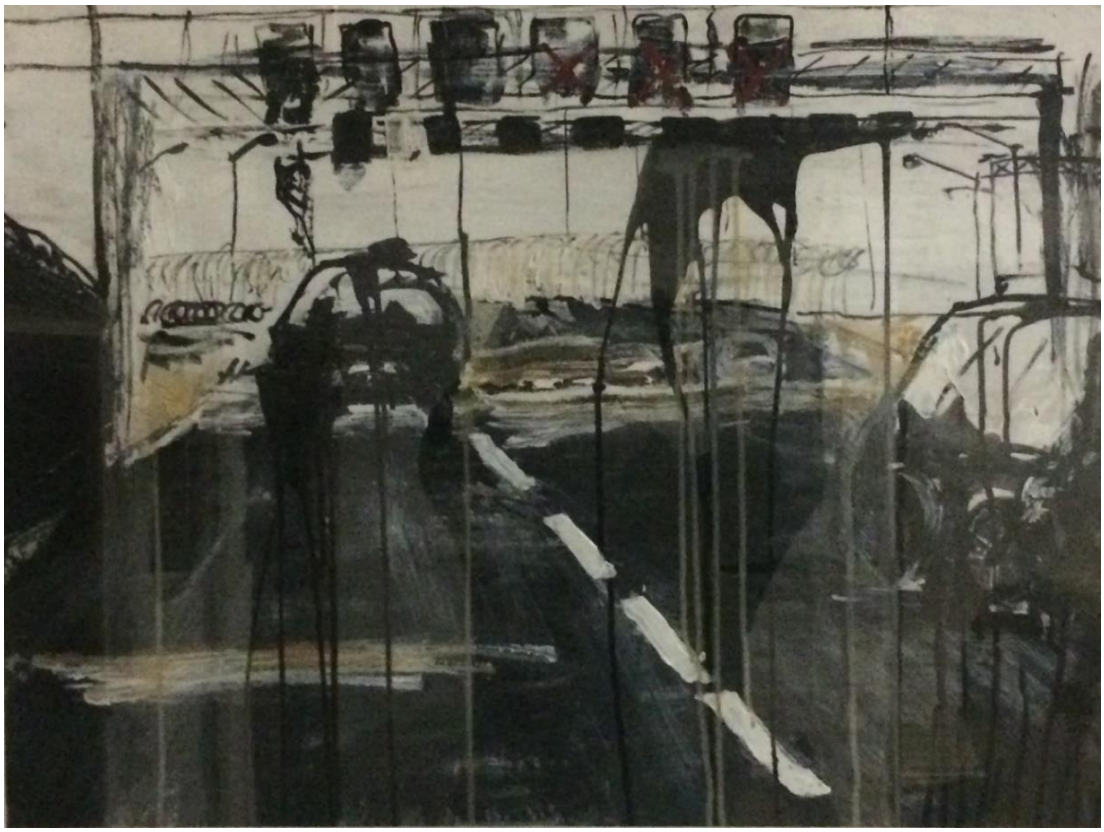

Figure 3.18 - Jemma Todd, Harbour Bridge on a Rainy Day, 2002, painting, author's collection

In 2014 I witnessed British Neolithic objects being dug up out of the ground and handled for the first time in thousands of years, at a Neolithic archaeological dig in Orkney, Scotland. The experience is difficult to adequately convey in words. I was engaged by the essence (rasa) of the artefact as it lay before me. My response was viscerally affective. As well as the haptic experience of seeing and feeling the artefact, I smelt the earth and felt the environment. I sensed the material from which it was made and felt the presence of an imagined maker. There was a deep sensing of the visible effects of time and weathering in the marks on the surface and the chips on the edges or cracks that all spoke of how long the object had been in the world. All these experiences were simultaneously woven together with rasa and experienced as enmeshed. It was profoundly moving to see and touch something that another human had shaped from materials, handled and used and valued thousands of years ago. It felt to me like a connection with my ontological history that travelled from hand to hand and now to me. The object triggered a connection between the maker's affective meshwork and mine that reached across time.

Although it is difficult to convey the full sense of the relationship to material objects in words, concepts like wabi-sabi and rasa have enabled me to begin to describe the affective response in more depth than previously possible. The experience of connection with these ancient works is more than one of aesthetics; it is one that travels across time and space. In the next section I begin to connect these felt philosophical concepts with some of the key concepts of neuroscience.

3.9 Neuroscience and the Affective Meshwork

In order to commence this section on neuroscience, it seems important to clarify my use of the terms conscious and unconscious. I wish to use these terms in a practical rather than a technical sense, focusing on the processes that come into play in the acts of noticing, seeing and making. The mind-body duality arising from philosophy has led to consciousness being commonly thought of as

a phenomenon of the mind. Neuroscience, however, offers a perspective on ways of knowing that supports the idea that consciousness is a whole body phenomenon. This approach is illustrated by neurologist Antonio Damasio (1996), who argues that consciousness is not created only in the brain.

Such an understanding of consciousness has implications for how we currently conceptualise making. In particular, the connection between consciousness, sensing and affect underpins the idea of ‘making from the inside’. In this characterisation of the making process, the phenomenological body is engaged with materials in the act of making. Ingold (2013) describes this engagement as a correspondence with materials; that is, a way of being with materials as an approach to making. Being with materials at its most radical does not require thinking consciousness as traditionally understood. In fact, thinking consciousness can hinder what the body is doing, just as thinking about the notes being played can hinder a musician’s performance. Indeed, psychologist Julian Jaynes (2000, p. 47) argues that consciousness as he defines it is a relatively recent phenomenon, and that societies developed rich artistic cultures without the need for a definition of consciousness:

> If our reasonings have been correct, it is perfectly possible that there could have existed a race of men [*sic*.] who spoke, judged, reasoned, solved problems, indeed did most of the things that we do, but who are not conscious at all.

Following this understanding, the view taken within this exegesis is that much of what we experience lies outside the realm of minute to minute thinking consciousness, but is nonetheless processed in the body and brain. This is what I characterise as *bodily* consciousness, the idea being that the body is conscious in a way that we may not be aware of from minute to minute. Bodily consciousness can nonetheless provide the basis for thought and action. I would argue that it is the affective meshwork that gathers together both thinking and bodily consciousness in the action of making.

The mechanism by which this happens can be explained at least in part by looking at how the various parts of the brain work. The physical structure of the

brain and how it operates as an entity have an influence on how the world is taken in and understood by the body as whole, and consequently has impacts on our responses and actions. The physical and chemical structures of the brain then ultimately influence making and the relationship between thinking, bodily processes and materials. Research has found that the brain is a whole organ with various physical areas specialising, although not exclusively, in particular functions. Input from the world is sensed in a number of specialised areas of the brain (Churchland 1986; Panksepp 1998). Ian McGilchrist describes how the two hemispheres (right and left) of the brain function in complementary but different ways that are mediated through the corpus callosum (2009). McGilchrist describes the significant differences between the two halves of the brain. An extremely simplified view is that the right hemisphere *tends to* perceive the world in a holistic way (the analogy being the process of a whole picture coming into focus) and the left *tends* to categorise, sort, label and assess the world for utility (the analogy being building a picture from component elements). Summarising and oversimplifying detailed and complex neuroscientific findings is always contentious; however, in this case the risk is necessary for the sake of advancing my discussion. Even if these broad brain functional differences do not map perfectly onto the different sides of the brain, the notion of functional specialisation is important. McGilchrist (2009) issues a caveat by pointing out that both hemispheres are involved in most brain functions to a greater or lesser degree. This, however, does not diminish his argument. McGilchrist (2009, p. 98) illustrated this when he writes:

> I want to try to stand back a bit from the question of which functions therefore, the supposedly machine like hemispheres are performing, and think of them more globally as having a disposition, or stance, toward the world – having a ‘take’ on it if you like.

Accepting this caveat, I notice that within neurological understandings there is a common characterisation of the relationship between brain hemispheres. The right brain hemisphere receives (makes sense of) the inner and outer world holistically, and communicates with the left hemisphere. The left hemisphere receives (and makes sense of) the world for categorisation, analysis and

assessment, before its response is ‘sent’ back to the right hemisphere for integration to complement and augment what it originally perceived (Churchland 1986; McGilchrist 2009; Panksepp 1998; Ramachandran 2012). It is this process that McGilchrist (2009, p. 199) argues is the site of imagination and art. His view is that:

> The right hemisphere needs the left hemisphere in order to 'unpack' experience. Without its distance and structure, certainly, there could be, for example, no art, only experience.

This processing power of the left hemisphere has implications for using language as a tool for understanding and explaining creativity and making. A problem exists in that whilst the right brain hemisphere integrates experience holistically, it is the left brain hemisphere with its inherent imposition of linear understanding that is the centre of language. As a result, sometimes we struggle to describe certain kinds of holistic experience emanating within the right brain hemisphere (McGilchrist 2009). Additionally, this phenomenon can explain in part the process of making that we recognise as purposeful and deliberate, but not explainable in words. Ramachandran (2012, p. 237) adds another perspective to this situation:

> I find it intriguing that the visual metaphor is probably understood by the right hemisphere long before the more literal-minded left hemisphere can spell out the reasons. (Unlike a lot of flaky pop psychology lore about hemisphere’s specialization, this particular distinction probably does have a grain of truth.) I am tempted to suggest that there is ordinarily a translation barrier between the left hemisphere’s language-based propositional logic and the more oneiric (dreamlike), intuitive ‘thinking’ (if that’s the right word) of the right, and great art sometimes succeeds by dissolving this barrier. How often have you listened to a strain of music that evokes a richness of meaning that is far more subtle than that articulated by the philistine left hemisphere?

Further evidence in support of the brain functional specialisation is provided by medical science. Convincing examples of the link between unconscious brain processes, the outside world and our responses are seen in the neurological symptoms such as 'Prosopagnosia' and 'Blindsight' (Doidge 2010; Ramachandran 2012). These cases demonstrate the unconscious recognition of physical phenomena that is independent of, and not immediately available to, the conscious mind. An illuminating approach to this connection between the unconscious and ways of knowing is provided by Jaynes (2000, p. 44):

> The essential point here is that there are several stages of creative thought: first, a stage of preparation in which the problem is consciously worked over; then a period of incubation without any conscious concentration upon the problem; and then the illumination which is later justified by logic …The period of preparation is essentially the setting up of a complex struction[2] together with conscious attention to the materials on which the struction is to work. But then the actual process of reasoning, the dark leap into the huge discovery ... has no representation in consciousness. Indeed it is almost as if the problem had to be forgotten to be solved.

The large amount of activity occurring in the brain that is separate to thinking consciousness allows for the world to be taken in, processed, and acted on whilst still remaining inaccessible to the specialist linguistic functions of the left brain hemisphere. As a consequence, even though some knowing is difficult or impossible to render into articulated language, *it is still knowing* and may be expressed for example in making, painting, dance and music. Where making is at least partly based on bodily consciousness, it can be understood as *thinking through action*. This is a kind of direct line where bodily thought enmeshed with imagination can be expressed through the interaction of the body with materials. Resolution of alternative directions or solving of problems is often happening inside this process. It is not uncommon for me to not fully 'see' or understand

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[2] 'Struction' is a term Jaynes (2000 p. 39) uses to include both construction and instruction as a process that initiates thinking. He characterises thinking as an automatic process that follows a 'struction'.

the thing I have made *in a way that can be articulated* until I move out of thinking through action into thinking by language. In this case, articulation is an approximation of bodily knowing that can also add ideas derived by thinking. It appears to be a related parallel process of making meaning. In such circumstances, thinking is not confined to the brain. As part of bodily thinking, there is the implication of movement and making. This idea is considered by Ingold (2013, p. 98 - original emphasis): ‘Rather, the thinking *is* the movement’. In my experience, bodily thinking is commonly invoked when I am making, and this is closely connected to my affective response.

These concepts in neuroscience have implications for how I think about the relationships of making and contribute to the definition of the affective meshwork. Beyond its involvement in making, the affective meshwork is also at play when looking at things. This is not as simple as looking at a painting and being reminded of something. The meshwork entangles physiological as well as mental and emotional phenomena. Continuing the considerations of neuroscience, Pallasmaa (2011, p. 71) describes this relationship between depicted images and affective response and presents an argument that supports my description of the affective meshwork:

> The fact that we have the capacity to grasp spatially the depicted reality of two-dimensional images as well as depicted action and movement, combined with the psychoanalytically verified phenomenon of projective identification and the current discovery of mirror neurons, suggests a basis for our mysterious capacity to experience an intense emotive and affective relationship with artistic images.

It is my experience that this phenomenon of affective relationship applies more widely than just to images such as drawings, paintings, and photographs that are made by people. Some kinds of weathered and worn things provoke intense curiosity and response even though they may not have explicit figurative or narrative depictions, or be made for viewing as art. The original thing (for example a building) may have been made by people, but the making (in the sense that Pallasmaa (2011) uses it) has been continued through weathering

that produces particular colours, textures and form. My response, through experiencing the material qualities of these things, engages an affective meshwork connecting imagination and feelings. I sense the making in progress, and the metamorphic weathering that produces its particular presence. This evocation is partly aesthetic in that I respond to the particular look of the thing with thoughts and conscious memories. I also imagine a material narrative for what is before me. Importantly, there is a response that is direct, and outside the realm of conscious thought. This response nonetheless makes itself known through bodily affect. The affective response may linger past the initial stimulus and also spread and provide further provocations, responses and memories. One does not need to be focused and conscious for these ‘echoes, or ‘ripples’, to act and interact across the meshwork (Ramachandran & Blakeslee 2005).

McGilchrist (2009 p. 225) argues that the physiological links and loops are deep within the brain, below the corpus collusom: ‘These "loops" underlie stable emotionally laden aspects of experience’. Again, here the ‘loops’ are affective and pre-emotional. One example of this is the realisations that can occur in a semiconscious state before sleep, where problems are solved or new ideas are found. In his autobiography Richard Wagner (1983 p. 499) writes of his experience on the bleary margins of sleep when all at once the orchestral overture to the Rheingold came to him. This space before sleep can be annoying because one has to bring the attention back from sleepiness if one wants to record or remember the idea. One response I have to this is to have a drawing book next to the bed for such moments. In this way affective memories and thoughts are captured for the future and contribute to the definition of a meshwork that is informed by both philosophy and neuroscience.

Lastly, Jaak Panksepp’s (1998) approach makes the inhabited body a central phenomenon and participant in the emergence of the affective meshwork. He combines neurobiology, psychology and philosophy in the study of affect and emotion in an approach that considers the body as a whole as the instigating entity for our responses. Ingold (2013) extends this idea when he writes of ‘thinking through making’, which at its core is a physical, haptic interaction. Surrounding and woven within this haptic interaction are feelings, thoughts,

memory and imagination. Together, all this forms a meshwork that produces a bodily ‘thinking **as** making’ that later becomes subject to contemplation, explicit judgement and curiosity. It is most commonly only at this later stage that the process becomes amenable to language.

The concept of affective meshwork as I have experienced and described it in this chapter originates from Ingold's development of De Landa's meshwork. To the ideas of meshwork I have added an affective component that combines my personal experience and readings in neuroscience. The outcome of these readings and experience provides an understanding of the possible character and functioning of the affective meshwork. In the next section I move onto a consideration of making and objects understood through the meshwork.

3.10 Morphogenesis, Making and Meshwork

In thinking about making in concert with my affective meshwork, I have come to characterise my approach and methods of making as morphogenic. The term ‘morphogenesis’, as defined in the Oxford English Dictionary, originates in biology, referring to the development of an organism or plant (*Morphogenesis* 2017). It connotes development coming from inside the organism as it grows. I see my madework as arising from inside the materials and this term fits my experience and understanding of the emergent relationship of body to object.

The biological meaning of morphogenesis was expanded by French philosophers Gilles Deleuze and Felix Guattari (2005 p. 4). By way of contrast, they describe the deficiencies of what they call the ‘hylomorphic’ model of understanding that has its roots in ancient Greek philosophy. The hylomorphic view has formed a largely hidden foundation for much of Western thinking about making and that which is made. In modern times, the hylomorphic paradigm is illustrated by a common misconception that madeworks are first imagined, then ‘designed’, and then made to match the design. The hylomorphic conception is exemplified by modern mass production where products are designed, and factories are tooled up to produce according to the design. In response to the perceived inadequacy of the hylomorphic approach, Deleuze and Guattari

(2005 p. 409) propose the model of a flow of materials and forces as the basis for an understanding of the world, and of making in particular. They describe making as a process where forces act on materials, and making arises from this interaction. In relation to the conception of a morphogenic understanding of making, Deleuze and Guattari, as well as Ingold, are influenced by the work of Gilbert Simondon. Deleuze and Guattari (2005) point out that:

> Simondon demonstrates that the hylomorphic model leaves many things, active and affective, by the wayside. On the one hand, to the formed or formable matter we must add an entire energetic materiality in movement, carrying singularities or haecceities that are already like implicit forms that are topological, rather than geometrical, and that combine with processes of deformation: for example, the variable undulations and torsions of the fibers guiding the operation of splitting wood. (p. 409)

Ingold (2013) draws on Simondon in writing:

> Simondon's central postulate of individuation holds that the generation of things should be understood as a process of morphogenesis in which form is ever emergent rather than given in advance. (p. 25)

Ingold (2013) has developed and expanded these ideas of materials, flows and forces, suggesting 'correspondence' with materials as a way of understanding making. In this conception, the maker and material enter into a kind of dance or correspondence over time where each contributes to the flow of becoming.

In making, the clay I work with strongly influences the timing and character of my actions. It makes a significant contribution to our correspondence. Its wetness or dryness and composition mean that the clay will respond in particular ways to certain forces or movements. Finding a way to encourage clay to move in a particular way requires tuning in to its texture, moisture content, and plasticity. As I am making, various strands of my affective meshwork come to the fore. Memory, imagination and thought contribute to the

general kind of form I make. This combines with feeling the character of the clay as I begin to move it. As the process evolves, what follows is a mixture of haptic and affective response, and physical feelings such as breathing or muscle tension. Together the flow of clay and energy determine the direction and character of making. This will determine how far the clay will stretch and how it will look after stretching. The components of this process are multiple and complex and are an example of meshwork in action that aligns with the morphogenetic understanding of relationships between bodies and materials.

3.11 Intimacy, Intensity and Ethereal Qualities

The understanding of making as experienced from the inside is different from looking at it from the outside. When experienced from the inside, flow and interactions of materials and forces are directly experienced, in an ongoing 'correspondence' with the body. My understanding of making and my skill level have evolved over time. In working bodily, the 'correspondence' is repeated over and over and leads to an increased bodily and articulated understanding that grows through years of making. It contains developed and refined sensory components that arise from intimate interaction with materials, as well as my evolving thoughts, memories and imagination.

Three important ideas contribute to this process of making from the inside: time, intensity, and proximity. Whilst these are separate concepts, I see them as aspects of the relationship to materials in the act of making from the inside. The relationship of the whole body and mind to materials can be considered in light of these parameters. The amount of time spent corresponding with materials is significant for me because over time connections and relationships in the affective meshwork are built up. I make almost daily, sometimes for long days. I have found that the more time I spend making, the more complex and robust the correspondence with materials that feeds my affective meshwork. Time spent making builds up knowing, and knowing enables telling. More completely, the process involves a meshwork of making unmediated by conscious processing that joins up with conscious consideration, which then triggers unconscious and haptic elements, in a synthesis that feeds back into making.

The connection between myself and the material is like a flow of energy back and forth. From my side, there is haptic, emotional, visual and affective energy. The material responds, and I in turn respond as we both correspondingly flow with time. Within this flow arises an emotional commitment or intensity between my body and the material that binds me to the making process. Intensity can be understood in one sense to be about excitement, risk, and euphoria. This is the meaning that is commonly applied to human relationships. In another sense, intensity can be about strength and force, such as in the idea of the intensity of light. Within the context of making, my use of the term intensity is different, but also incorporates elements of both of these understandings. In this view, intensity embodies close physical sensory contact, being focussed, and being immersed in the connection with the material. For me, uninterrupted studio time solidly devoted to making is essential to developing and maintaining the intensity I need to develop my work.

Alongside intensity is the more considered (or perhaps quieter) process of intimacy. Intimacy in the context of my making refers both to physical distance and to metaphorical and emotional closeness. For example, when I work directly with clay, my hands are on it and inside it in the most intimate form of physical contact. I pull, push, massage, pound and caress it. All my senses are engaged. Out of this work arises an emotional disposition. And as already discussed, hapticity is enabled through being close enough to the clay to allow physical bodily interaction. Achieving proximity and achieving intimacy are not necessarily related by scale. Intimacy with material does not require the madework to be smaller than the maker and intimate in this sense of the word. Both intimacy and intensity can be traced in my experience of works by other artists.

Ceramic artist Alexandra Engelfriet produces powerful large landscape scale works by using her entire body in intimate contact with the earth in a most dynamic correspondence. In the work displayed in Figures 3.19 and 3.20, Engelfriet has had several tonnes of clay dumped into a trench by a front-end loader and literally throws herself at the clay walls of the trench to form a sculpture measuring twenty metres long by two metres high.

Figure 3.19 - Alexandra Engelfriet forming the walls of clay in the Trench Project, France, 2010 - 2013, photo: Estelle Chretien, source: www.alexandra-engelfriet.nl

Figure 3.20 - Alexandra Engelfriet forming the walls of clay in the Trench Project, France, 2010 - 2013, source: http://chevagny-labelvie.fr/wp-content/uploads/2017/04/Alexandra-Engelfriet.jpg

Figures 3.21 and 3.22 show the physical results of Engelfriet's hands and knees impacting, pushing, and stretching the clay, forming an almost amorphous and ambiguous woodfired clay sculpture, which resonates with the geological and natural action of earth movement. Engelfriet's work is a strong example of the intimate interaction between the flow of bodily forces and the materiality of clay not being confined by scale. I can read and feel these movements, they are familiar and real, and demonstrate all the power and energy that making in clay can offer.

Figure 3.21 - Alexandra Engelfriet wall project, fired clay, 2017, Starworks, North Carolina, USA, photo by author, 2017

In the Victora and Albert Museum in London (2014), the curated exhibition *Material Forces* introduced a range of objects that embraced this approach to intimacy. In this exhibition, captions were used to elucidate how each maker's enagagement with the physicality of the processes of shaping by hand, and the transformative forces of the kiln, contributed to the material objects. They highlighted how simple, repeated actions in making give results in which gesture and expression are of great importance. Such work often combines raw

energy with a sense of poetic expression, signifying to me the outcome of engagement born out of proximity, time and intensity. Engelfriet's works (see Figure 3.22) included in this exhibition are an eloquent telling of a powerful and intense flow of forces and material.

Figure 3.22 - Alexander Engelfriet, 'Untitled', Sculptural form, Stoneware, hand-built and woodfired in a trench kiln dug into the ground, Material Forces Exhibition, V&A Museum, London, photo by author, 2014

Other artists in *Material Forces* illustrate an intimate relationship to materials and force. Lawson Oyekan (Figure 3.23) and Thiebaut Chague (Figure 3.24) both extend the material and physical relationship beyond the clay itself, and back into the body of the viewer. The sculptures of Lawson Oyekan have been been made in a very intuitive and direct way showing the rawness and earthiness of the clay material. His repetitive and rapidly made incisions show the action of hand and tool in movement against the surface.

Figure 3.23 - Lawson Oyekan, Form from series 'Coming up for Air', 2001, red earthenware mixed with cotton fibre, V & A Museum, London, photo by author, 2014

Thiebaut Chague sees his woodfiring process as one that pushes clay to its limits, risking destruction. As an example of robust intimacy, his pieces have been slipped on the outside and then thrown from the inside to give the stretched and cracked surface quality. The firing enhances this fissuring to expose energy contained within the forms.

Figure 3.24 - Thiebaut Chaque, 'Matrice' (Matrix), 2006, Stoneware, thrown, incised and woodfired, Museum no C. 97-2007, V&A Museum, London, Source: © Victoria and Albert Museum, London

Thinking about these works by Engelfriet, Oyekan and Chague together enables me to begin the process of extending the relationships of making to affect further. Central to my understanding of affective meshwork is the act of ‘noticing what I notice’. In this context, ‘noticing’ applies to things in the world that I experience, as well as noticing experiences within me that correspond with my external noticing. It is a process of bringing into consciousness the strong connections that impact in the affective area of my meshwork and then sensing what is to be sensed as arising from this transaction. In my field of ceramics there are some madeworks that can be taken in at a glance, such as a piece with humorous text on it. Once you get the joke, your engagement is done. The result is a remembering and thinking about the joke rather than an engagement with the materiality of the piece. In contrast, if a work engages multiple strands of the affective meshwork, the door is open to hold your attention at different levels, over multiple encounters, and over time. A piece that engages an affective meshwork offers the prospect of an ongoing and evolving relationship.

There are also phenomenological aspects that stretch this intimate relationship with the physical object further. As well as the verifiably physical aspects of madeworks, both ancient and contemporary, there are aspects that seem to be beyond the physical realm and are nonetheless able to provoke a response. This could be described as an ‘ethereal quality’. Sensing this quality is also part of the affective meshwork. In particular, when looking at some ancient and contemporary madeworks, these qualities can be become apparent at the physical edges. They suggest physical and metaphorical links to what happens at the margins, a destructive and creative process at the border, whether sharp or blurred. This happens at the intersection between physical and imagined worlds, and at the intersection of the thing and its surrounding space. Archaeologist Michael Shanks (2012, p. 38) suggests that ‘[m]argins and edges are, after all, so often where things become clear’. Whilst difficult to delineate and pinpoint phenomenologically, an object’s material qualities can create a sense of something residing beyond the physical object itself; something in the space adjacent to the work, which is captured in the edges. An example of this is shown in the piece displayed in Figure 3.25, which has movement spiralling

up from its base, and at its top edge the movement seems to continue into the space beyond the limitations of the physical piece.

Figure 3.25 - Sandy Lockwood, ‘Two cups' ceramics, 2015

Another example of how edges can portray ethereal qualities is in the piece displayed in Figure 3.26. This shows apparently thin and decaying edges that suggest a disconnection and removal of the pot’s fabric through an erosional process.

Figure 3.26 - Sandy Lockwood, ‘Subduction Series’ detail, ceramics, 2016

The importance of edges is further exemplified by Mark Rothko's paintings in the Tate Modern, one of which is shown in Figure 3.27. When viewing this work in the gallery, I had a sense that the depth of colour was not confined within the painting's frame. It was as if the colour flowed beyond the constraint of the edges of the work. This flow also seemed to come from the surface of the painting towards me. I can only label this direct apprehension as an engagement with my affective meshwork, in sensing beyond the mundanely visible.

Figure 3.27 - Mark Rothko, Red on Maroon, 1959, Tate Modern, photo by author, 2014

Placing the idea of the ethereal together with affective meshwork offers a way to understand the experience of works that is not solely visual, and extends outside their physical parameters. For example, on viewing the original painting by Monet (Figure 3.28), there is a sense of light and heat that emanates from the canvas.

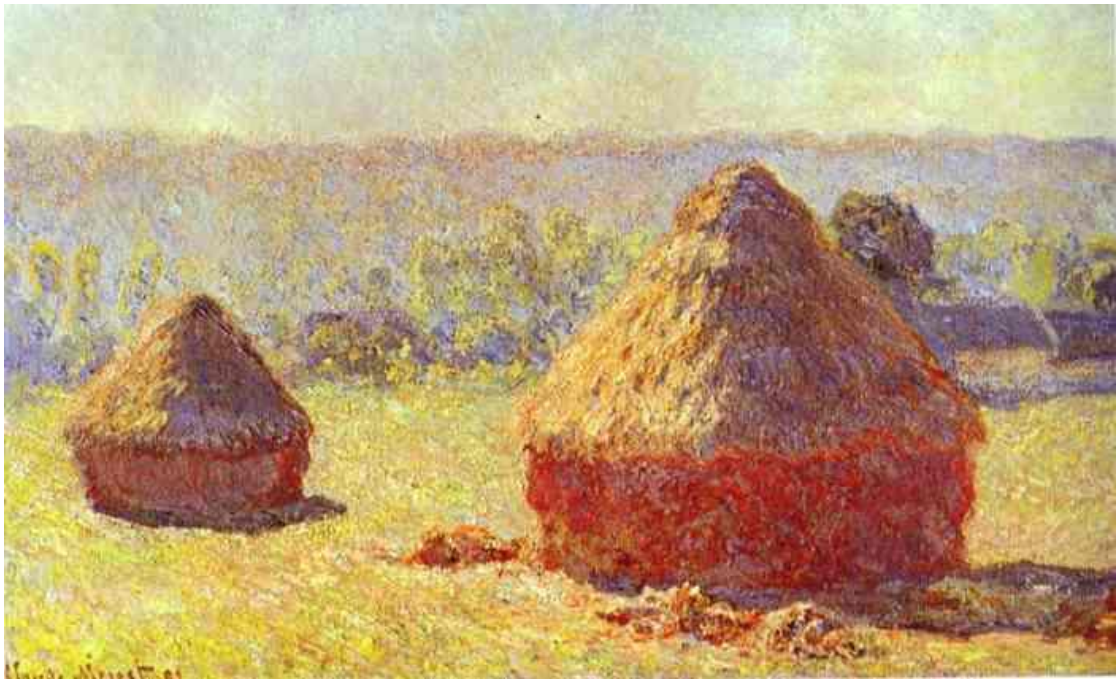

Figure 3.28 - Claude Monet, Haystack End of the Summer Morning, 1891, Oil on canvas, Musee d'Orsay, Paris, France, source: commons.wikimedia.org

In all of these examples there is a suggestion of an aspect of the piece being sensed as simultaneously there and not visible. This process of sensing the ethereal also happens when I evaluate my works after firing. The resultant outcomes can challenge my preconceptions and provoke a new knowing, which in turn stimulates new thought and action that feed into the next round of making. Additionally, my response to a particular piece or result may vary over time. I may see something I have not previously noticed, and some new feature or relationship may emerge. There may also be a change in my sensibility, and I may understand the piece differently for a reason I cannot articulate at the time. The meaning of a piece can change according to what I see, and what I see can change according to the context, my disposition and sensibility, and the evolution of my affective meshwork. The important thing here is that paying attention to the piece over time is what drives the process. When I feel

engaged, it is through the motivation of the affective meshwork. In the words of McGilchrist (2009, p. 133):

> Attention has consequences. One way of putting this is to say that we neither discover an objective reality nor invent a subjective reality, but that there is a process of responsive evocation, the world 'calling forth' something in me that in turn 'calls forth' something in the world.

In calling forth, these objects engage weathering, haptics, memory, and pre-conscious understandings and ways of knowing. The level and duration of attention paid to them is related to the strength and dynamic of how the affective meshwork is engaged.

3.12 Conclusion

In this chapter I have proposed the idea of an affective meshwork as a way to consider a number of complex and subtle phenomena that underpin the process, experience and understanding of my making. This new understanding has implications for how I relate to the British Neolithic artefacts that originally sparked my interest in this area.

This chapter began by considering the central place of touch in my making practice, and its relationship to other senses. Different meanings of 'affect' were considered and the ideas of affective response and affective meshwork were sketched out. The findings of neuroscience, and understandings of consciousness and attention, have been framed as influences on how the world is received and on the emergence of the affective meshwork. This approach was supplemented by a consideration of some philosophical ideas that suggested other ways to conceptualise the affective meshwork. Finally, an important idea that relates to understanding my making is that of morphogenesis. This idea was included in this chapter because it closely matches my experience of making. These ideas were then applied to my making and experiencing of British Neolithic artefacts.

CHAPTER 4: THE WORK

I have come to appreciate making for this project as a personal striving to understand the drivers and motivators of the strong creative urge that has been the foundation of my making practice. I have come to view these madeworks as an expression of my affective meshwork. My drive to make was possibly motivated by what feels like a deep genetic memory, seeking to reanimate some ancient relationship to the materials of the earth. It was as if I needed to come to grips with something vaguely but persistently hovering at the edge of my knowing. It could be depicted as an 'ontological itch' that required scratching. Over many years of practice, I have come to learn that the most efficacious method for engaging this drive is the intimate physical interaction in correspondence with materials that happens during the act of making. It is in this way that the act of making remains central to this project as a tool of exploration and discovery, both artistically and personally. An important function of the madeworks in this exhibition is to signify this intimate, intense and personal journey. These madeworks are the 'telling', in the sense that Tim Ingold (2013) uses it, about what I have learned from my engagement with making.

The making was provoked and animated by British Neolithic artefacts. The artefacts attracted me through a number of enmeshed components. There are the memories of my upbringing, experiences of nature, and old buildings and artefacts. Woven into these experiences has been the inexplicable attraction to weathered, worn, and patinated surfaces, and the resultant invocation of imagined pasts and peoples. These aspects of my development continue to the present, and so I found it unsurprising that I should be attracted to the British Neolithic artefacts that crystallised much of what engages me so strongly.

Making works for this PhD project has been undertaken as a process of making from the inside, in correspondence with materials, in order to see what may emerge. So, whilst the materials themselves have played a significant part in the ongoing process as explored in Chapter Two, the making has not been without careful consideration and thinking. In other words, the making has not been naïve. Bodily knowledge and articulated knowledge have played important

roles as explored in Chapter Three. This knowledge had been intentionally developed and has been applied in a way that draws on my 'affective meshwork' in all of its complexity, recognised and unrecognised.

I have attempted to carry into my work some of the essence of British Neolithic artefacts that has engaged me so strongly. I see this essence as the rasa referred to in Chapter Three. The direction of making was intentional but I could not determine the precise final outcome. A general class of form was envisaged when making began, and this evolved over the course of a number of iterations of making and firing. Additionally, sometimes a tangential idea would pop up and be followed or incorporated as work progressed. This way of working with general parameters in a given direction allowed space and opportunity for the material to contribute. Indeed, sometimes the material led or ‘took over’ the process.

Making for this project has revealed a number of felt connections between Neolithic makers and myself as explored in Chapter Two. At the initial level, there are bodily similarities that are shared. I share a human body with Neolithic people and all that this implies. Hands and senses are enmeshed with haptic experience, intent, and embodied affective response. Imagining these commonalities seemed to reach across time. During some intense periods of making, I found that I seemed to move into an interstitial place between then and now, and it felt at some level as though I existed in both worlds simultaneously.

At the material level, Neolithic humans and I made things from clay and stone. In both cases, contact with materials is direct and intimate, and making builds on skill and imagination. Looking at Neolithic artefacts, it is difficult to imagine them being made without curiosity, noticing and discovering.

For me, the act of making is an important part of my ontological vocation. I see myself as a maker and I make myself and my world into existence. Given the shared bodily similarities to and archaeological inferences from Neolithic times, I have come to believe that making back then was also part of their ontological practice. Of course, I have not been able to discuss any of this with the Neolithic

people. I have nonetheless felt connections through our similar materials and direct making methods, and from engaging directly with their artefacts. My relationship to British Neolithic artefacts has been primarily experiential and affective in character. They have been approached from the perspective of an artist maker taking them in directly, using all my senses and seeking to integrate them into my affective meshwork. My approach in thinking about this has been primarily phenomenological. I have focussed on metamorphosis and the practice of making from the inside, with inspiration from, and reference to, British Neolithic madeworks as examples of particular material characteristics.

It is within this context of bodily knowing and affective meshwork as explored in Chapter Three that I make some observations on making work for this project. It is important to note that I consider these words to be an articulation that is parallel to the telling of the pieces themselves as exhibited. Whilst related, these two strands of presentation are not identical or substitutable; I hope that through cross fertilisation they each contribute to the experience of my work.

This chapter is loosely organised around the kinds of work made, showing a thread between the exhibited pieces and my experiences. Whilst some pieces such as ‘fish boxes’ are closely related to individual kinds of artefact, others such as ‘querns’ are abstractions based on material qualities that take the artefact as a starting point. Works such as the ‘Unstan bowls’ lie somewhere between these two approaches. The most abstracted are the ‘discovery’ pieces that for me tell of a distillation of rasa from the threads of the affective meshwork linked to their making.

In general, the experience of British Neolithic artefacts has been the starting point for exploration of the material qualities discussed in Chapter One. It is the material qualities and my affective meshwork that bind the pieces together, rather than an attempt to recreate or reinterpret the objects per se.

4.1 Melt Tests

My practice has always included investigation of materials. Sometimes the approach has been formally structured and methodical, such as in glaze

formula testing. Sometimes, as within this project, investigation has been more ad-hoc in response to what I have noticed in the behaviour and response of my materials. Such an approach has important benefits, as it allows for unconventional and unexpected results to manifest. The fact that the results from this method cannot be precisely repeated is not of major concern. What matters to me is that they become incorporated into my affective meshwork so that they can serve the evolution of my making process. Melt tests are one example of ad hoc investigation utilised within the present project, primarily as a response to my curiosity. They are driven by the key question, 'What would happen if I fired some stones and clays that I just find around the place?' such as those displayed in Figures 4.1 to 4.5. 'Melt test' is a term that does not tell the whole story. In addition to melting characteristics, I was also seeking to discover colour and texture responses. I wanted to incorporate some aspects of what I imagined could be a Neolithic approach. I wanted to experience relying on empirical methods of learning by doing, with engaged curiosity. This was part of my strategy of harnessing uncertainty. The idea was to select a number of likely materials and fire them to see what happened. Because materials are the starting point for my way of making, this step enabled the selection of materials from available resources that could be used to develop works.

Beginning by imagining myself as a person in the Neolithic world, I picked up local rocks and stones over a period of months, and kept them in containers without any real categorisation except perhaps that they looked unusual or interesting. From the initial gleaning, samples were selected according to what may be a possible colour and melt response to firing. Found materials can give some indication of their properties and fired characteristics through sight and feel, but a number of mineralogical aspects of their composition are not readily seen or felt. I did not research chemical analysis of the clays I used. This may be characterised as a self-consciously naïve approach. However, it offers some advantages as in some cases I was greeted by unexpected results from this 'material qualities' approach, and these suggested avenues for further exploration. I considered the results of initial melt testing as the embryonic emergence of the voice of materials that became clearer during the making process.

Figure 4.1 - Raw found clay for testing, ‘Metamorphosis’ Exhibition, Project Space, UOW, Wollongong, 2013

Figure 4.2 - Raw materials and stones for inclusion into clay bodies, ‘Metamorphosis’ Exhibition, Project Space, UOW, Wollongong, 2013

Figure 4.3 - Sandy Lockwood, Clay and stone melt tests, ‘Metamorphosis’ Exhibition, Project Space, UOW, Wollongong, 2013

Figure 4.4 - Sandy Lockwood, Fired clay body tests, 'Metamorphosis' Exhibition, Project Space, UOW, Wollongong, 2013

Figure 4.5 - Sandy Lockwood, Fired clays and evidence of stones melting in clay body, 'Metamorphosis' Exhibition, Project Space, UOW, Wollongong, 2013

Melt tests were placed in various locations within my kilns, in order to subject them to different intensities of heat and interaction with the kiln atmosphere. They were fired in a firing cycle I use for studio production: to at least cone 12 in

temperature, which equates to about 1320^{0}C. They were subject to the addition of salt at the rate I use for production firings. This amount varies from 2 to 12 kg depending on what is in the kiln and which kiln is being fired. The salt has a fluxing action at high temperature that encourages melting of clay bodies through the process of turning silica particles in the clay body into glass. Inclusions in the clay also respond by vitrifying and melting at various temperatures. Whilst materials testing continued throughout this project, these initial melt tests provided a place to start making.

4.2 Querns

A ‘quern’ is a tool, usually made from stone, which is used for grinding grain. The first milling stones were hand-operated and are generally known as querns, a word derived from the Old English word *cweorn*. Querns are interesting on a number of levels. Their narrative begins thousands of years ago, when humans began using grain as a food source (Barrett 2006b). Early Neolithic sites have yielded ‘saddle’ querns. These were rectangular or round shaped bowls into which grain was placed, and another stone was held and used in the dish to grind the grain.

During my research I noticed saddle querns, but my attention was particularly taken by the circular rotary querns that came into use much later, probably around 400 BCE, in the middle of the Iron Age (Barrett 2006a, 2006b). These rotary querns were flat discs with a central hole, and wear marks on the surface. Grain was poured through a central hole in the top stone to fall between the rotating stones, and the ground grain spilled out from between the stones around the edges. The central hole has multiple functions and meanings. At the most basic level it narrates where the grain was dropped into the grinding process and allows one to imagine the ancient hand scooping up grain from a container and allowing it to stream onto the stone. It also performs a pattern making function through being a circle or square at the centre within a solid circle and thus carrying visual weight. On seeing archaeological examples, it is easy to imagine hands turning the quern to make meal and flour.

These rotary querns spoke so strongly to me that they became another inspiration for making. In drawing from the rotary querns, a hole has emerged in different forms in much of my current work. Across the variations of this form that I made, the hole seems to present a sense of a space beyond; a non-physical phenomenon that can lead the viewer beyond the physical object.

The Orkney museum has a collection of querns stretching from Neolithic times to the 1920s (see Figure 4.6). Some are in museum cases, and some are just lying on the ground in the museum entrance courtyard. Visual interest in the querns is invoked by weathering caused by wear and tear through use and exposure to the elements. The worn grooves and etched lines suggest the rhythmic action of stone against stone, linked to the rhythm of the human body. These ancient querns have patterns and forms that tell of hands over the course of thousands of years.

Figure 4.6 - Quern stone from The Orkney Museum, Scotland, photo by author, 2014

In making, I built on the visual vocabulary of use and weathering, and made a series of disk shapes, each with a hole (e.g. Figure 4.7). The materials chosen in making my querns were developed to meet a number of criteria. Most importantly, I wanted them to show a colour and texture that had visual strength. I had a general idea of the palette that may arise from a particular clay; however, the exact results could not be predicted. This was particularly true from firing to firing, where duplication of results was not practically possible. Secondly, the clay had to retain its structural integrity during the drying process, and also during high temperature firing. This was important as the forms had to retain their shape sufficiently to balance and stand upright for viewing.

Figure 4.7 - Sandy Lockwood, ‘Quern', woodfired salt glazed stoneware, photo by author, 2015

In order to provide an underlying visual texture to the finished querns, inclusions of varying types were mixed into the base clay. A significant proportion of these inclusions were found materials and stones sieved from making other clays. Sometimes I pressed textured powdered and granular material into the surface before the forming was finished. The intention of these methods was to invoke a random, unpredictable element in the finished object, in a similar way that nature creates irregular and unpredictable surfaces and textures through weathering.

Making the quern forms was a very intimate and direct process. A ball of clay was laid on a foam pad and initially rolled out to a roughly circular shape (see Figure 4.8). The sides of some pieces were then rolled and stretched until the right textural and form qualities were reached. This was done without quite knowing what the end result might be, as the results of this kind of making very much depended on the response of the clay at that particular time. In making later pieces I dragged the clay directly with my fingers to complete the stretching process. This was hard work as the clay being worked had to be stiff enough to retain its form, so as a result it was resistant to my hands and required significant physical effort. Further effort was required in handling the weight of clay required, to ensure structural integrity through the firing process.

Figure 4.8 - Sandy Lockwood, Forming 'quern' forms by two discs of clay, photo by author, 2015

My querns were wood fired in the salt glazing kilns. Three clay bodies were used to make the querns: black stoneware, orange stoneware, and porcelain. The black and orange stoneware clays were left uncoated before firing. Querns made from the orange clay body (see Figure 4.9) were placed away from more

direct atmospheric and heat attack within the kiln. This produced a softer, more orange-coloured result arising from the high alumina content in the clay.

Figure 4.9 - Sandy Lockwood, Quern Series I, detail, woodfired salt glazed stoneware, photo by author, 2015

Some of the querns were placed where they would be buried in ash and subjected to intense heat, as were the pieces shown in Figures 4.10 and 4.11.

Figure 4.10 - Sandy Lockwood, Fired black clay 'Quern' showing evidence of being buried in ember and ash melting out, woodfired, photo by author, 2014

Figure 4.11 - Sandy Lockwood, Black quern loaded near firebox front of the wood kiln, woodfired and salt glazed, photo by author, 2014

The porcelain querns were glazed all over. The glaze produced a variety of surface finishes and colours, from dry, matt white to runny, shiny green (see

Figure 4.12), and even some reddish tones where buried in the ember (see Figure 4.13).

Figure 4.12 - Sandy Lockwood, Quern showing effects of being buried in ember resulting in variation of surface colour and shininess or mattness, woodfired and salt glazed porcelain, photo by author, 2015

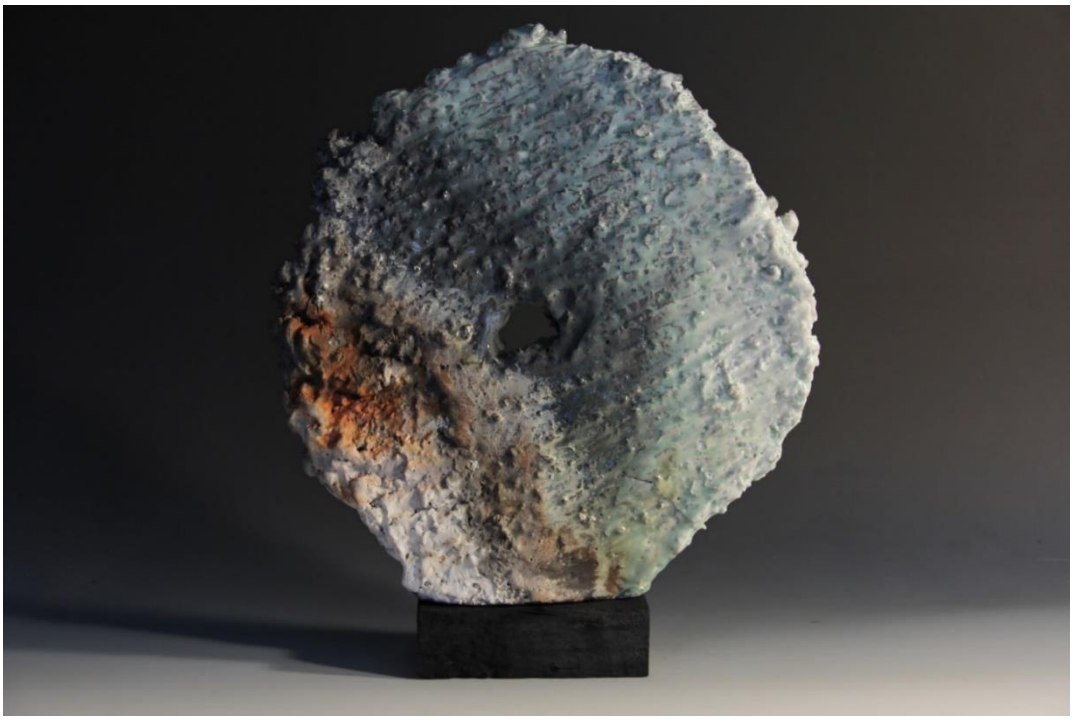

Figure 4.13 - Sandy Lockwood, Quern showing effects of being buried in ember resulting in variation of surface colour and shininess or mattness, woodfired and salt glazed porcelain, photo by author, 2015

Because the porcelain clay used in querns softens considerably during firing, it was necessary to lean them against the wall of the kiln. In order to avoid them being fused to the kiln, they were placed on balls of fireclay called wadding. Wadding can be more easily broken off once fired, and the tiny remains can be ground off the surface of the quern. These wads produce interesting marks where they shield the quern and divert the flame. For this reason, wadding placement was carefully considered for its possible effect. Even with precautions and preparation, many porcelain pieces did not survive the firing without cracking and warping. This outcome is not unusual across my making practice, as I regularly take the clay to its physical limits during making and firing. This approach produces pieces that are just on the limit of disintegration and collapse.

As it was important to show both sides of the quern pieces and allow for the hole to be best utilised, I decided to display them upright, although this presented a challenge. There were practical matters such as stability within a gallery setting, and aesthetic matters of how a base may relate to, detract from, or add to the piece. After some initial experiments, timber bases were made and the surfaces of these burnt with a blowtorch to blacken them (see Figures 4.14 and 4.15). These bases were then coated with a matt sealer to prevent carbon coming off the timber. Metal mounting rods were glued into the bases, which fitted into holes drilled into the querns from below.

Figure 4.14 - Sandy Lockwood, Quern with timber base, woodfired and salt glazed, black clay, photo by author, 2015

Figure 4.15 - Sandy Lockwood, Quern with timber base, woodfired and salt glazed, orange clay, photo by author, 2015

The resulting rectangular wooden bases provided visual simplicity and were intended to minimise distraction from the quern. After a while I came to question the difference in the visual qualities between the base and the quern. I consequently moved to making bases using clay of various types, which facilitated a more dynamic expression and related better to the material qualities of the querns. This also allowed the use of contrasting colour and stronger texture (see Figure 4.16).

Figure 4.16 - Sandy Lockwood, four images of Querns with textured fired clay bases, woodfired salt glazed stoneware and porcelain, photos by author, 2017

The expenditure of significant physical energy on making querns, and the intense and prolonged haptic interaction with the clay, produced strong physical and emotional feelings which strengthened my connection to the clay. There was also an important element of bodily learning about interacting with these kinds of clay at this scale. It is a learning that is ‘told’, in the sense described by Ingold (2013), by how I handle clay in other contexts within my practice.

4.3 Axes and Adzes

Stone axes are a common artefact (Edmonds 1995) that has become an iconic representation of British Neolithic times. This is due in part to their durability and the large numbers that were made. They continue to be found in agricultural fields and building excavations in many parts of Britain. Axes were made from a number of different kinds of stone, and, as well as their functional role for cutting and chopping, they appear to have had a trade and ceremonial place in Neolithic culture (Edmonds 1995). Museum collections of axes show a surprising range of making methods and materials, as well as shapes and designs. Some were made from stone quarried as far away as the Italian alps (Russell 1994, 1997).

The two examples in Figure 4.17 are highly polished quartz based stone, and their thinness indicates they may not have been functional in design. They could have been symbols of status or trading goods.

Figure 4.17 - Two polished Neolithic axes, Scottish National Museum, Edinburgh, photo by author, 2014

The examples in Figures 4.18 have been shaped from a coarser material rather than polished. Wear damage and coarser texture imply that they were probably more functional in nature.

Figure 4.18 - Two polished Neolithic axes, finds from Ness of Brodgar dig, Orkney, photo by author, 2014

Figures 4.19 show two knapped axes made from flint-type material. The angular ridges from the percussion bulbs form patterns that interact visually with the colouration of the stone used. The first example shows lighter colouration on a

dark background that looks similar to carbon inclusion that can occur in the firebox area of my kiln.

Figure 4.19 - Two images of Knapped Neolithic axes, Devizes Museum, Wiltshire, UK, photo by author, 2014

Most of the axes I have seen in museums have a similar general form. They are narrower at one end, with the main weight about one-third from the broad end. Visual interest is generated by many variations in size, polishing, colour and texture. These variations arise from the inherent material qualities of the stone determining what can and cannot be done by the maker.

Highly polished axes reveal the infinite colour and pattern of stone. The smooth shape invites holding and provokes a haptic response within my affective meshwork. The act of holding, feeling, and imagined feeling of polished axes led to me making axe-like pieces.

I made axes and adzes using two different types of clay that were each worked differently. The method that I used to work porcelain clay was in some way similar to that used in Neolithic times to make polished axes. In my work, 'plastic' clay was formed into a rough shape, analogous to Neolithic people shaping a rough form from a larger piece of quarried stone. The parallel is continued as the clay dries. The surface of my dried, rough clay is shaped using a surform tool, and then polished using sandpaper and a scouring pad. This process can take considerable time. Similarly, Neolithic makers used a number of grinding and polishing techniques for their axes, including rubbing with sandstone whetstones, and rubbing on stone outcrops and boulders of suitable material. Although the process of abrading from a rough shape to a finished shape and then working to polish the surface clearly took longer than my polishing of raw clay, the process is similar. In addition to these processes, my axes are hollowed out underneath in order to reduce the risk of cracking during the firing.

Once my porcelain axe is finished, it is bisqued[3], fired, and a white or translucent glaze is applied. The purpose of this glaze is to enhance the contrast between different effects produced by the kiln. As a result, I can

[3] **Bisque** refers to ceramic ware that has been fired once to around 1000oC and has therefore no chemically bonded water left in the clay.

achieve effects from dry matt to runny and shiny, as well as variation in colour on an individual piece and across various pieces in one firing (see Figure 4.20).

Figure 4.20 - Sandy Lockwood, Two porcelain axes, 'Metamorphosis' Exhibition, Project Space, UOW, Wollongong, 2013

The task of mounting porcelain axes evolved during the project. Mountings varied from kiln-fired wadding joining the piece to setters (flat pieces of clay used to separate the work from the kiln shelf) (see Figures 4.21, 4.22, 4.23), to mounting rods in formal bases (see Figures 4.24 and 4.25).

Figure 4.21 - Sandy Lockwood, Two porcelain adzes showing wadding on base to keep the pieces from adhering to the floor of the kiln, 'Metamorphosis' exhibition, Project Space, UOW, Wollongong, 2013

Figure 4.22 - Sandy Lockwood, Experiments with mounting axes and adzes, woodfired salt glazed stoneware and porcelain, 2014

Figure 4.23 - Sandy Lockwood, Porcelain adze fired with base altogether with wadding, 'Material Evidence', Olsen Irwin Gallery, Sydney, 2015

Figure 4.24 - Sandy Lockwood, Two Adzes mounted on clay fired bases attached using brass rod, 'Material Evidence', Olsen Irwin Gallery, Sydney, 2015

Figure 4.25 - Sandy Lockwood, Porcelain axes with clay bases and tied by brass rods and showing how articulation of top and base forms became important, 'Material Evidence', Olsen Irwin Gallery, Sydney, 2015

The axes evolved into a shorter, rounder form (see Figure 4.26) that invited holding and these were mounted on bases similar to those that I developed for querns. I made black clay bases that fitted the bottom of the axe or adze, and

these were fired separately. This method enabled me to articulate the pieces more dynamically and add an additional element to these pieces as a sculpture.

Figure 4.26 - Sandy Lockwood, Porcelain axes with fired clay bases, fired separately and then joined by gluing, 2017

Whilst my porcelain axes and adzes relate to polished stone tools, the black axes that I have made (see Figure 4.27) have a different genesis. A number of different elements came together in their making. These began as an

experiment in forming by cutting. The clay used was blended to respond to the action of a blade, leaving a cleanly cut plane. The process and the result spoke to me of knapping. I cut the clay with a knife, sometimes held in two hands with a strong haptic foundation requiring energy to execute. I made a series of strong direct strokes that, whilst not knapping or chipping, carried a similar energy through hard and fast action. The result was an angular, planar look that suggested the British Neolithic process of knapping that involved flaking residue away to achieve a form.

Figure 4.27 - Sandy Lockwood, Black axes, woodfired and salt glazed stoneware, 2016

The ‘black axe’ form has a number of references. There is reference to Neolithic axes in that they have a kind of blade and an axe-like form. Some pieces have the reference of a metallic colour and texture. The planar nature of the faces is also suggestive of cutting down an earthen face, such as is undertaken in opening a trench in archaeological exploration where stone axes may be found. Also, the work of the kiln in melting and softening carries the sense of metamorphosis as the forms are caught in a period between formation and destruction, balanced in time, soon to change.

Both porcelain pieces and black pieces were fired near the firebox of the kiln in order to maximise the metamorphic effect of heat, charcoal burying and melting ash. This resulted in the variation of colour and texture seen.

4.4 Unstan Inspired Bowls

Unstan bowls are named after the Unstan Cairn in Stenness, on the Orkney Islands North of Scotland where they were first recorded. They were some of the earliest pots made in Great Britain. Two decoration styles most commonly associated with these works are incised patterns and thumbnail and fingernail patterns. The presence of the maker in these works is evocatively evident. The form and decoration of these bowls is a sophisticated combination of proportion and visual strength. Their generosity of form and direct mark-making engenders a strong connection with those past potters. We both make inscribed marks into soft clay using hands and simple tools. The images in Figure 4.28 illustrate a number of characteristics of these artefacts. They have round bottoms and concave sides, and they are topped by a strong rim that undulates slightly. The colour patination forms a visually complex background to the mark-making. The examples displayed show an incised line pattern-making that encapsulates the rhythm of the hand and the body, transferred to the clay. These elements are combined to produce an integrated generosity of form and surface that is particularly affecting both visually and narratively. They eloquently tell the story of their making.

Figure 4.28 - Two Neolithic Unstan bowls, Scottish National Museum, Edinburgh, photo by author, 2014

Figure 4.29 - Neolithic Pots Fished out of a Loch on the Isle of Lewis, showing rims and texture and weathering, photo by Chris Murray

In response to the Unstan bowls, I began by experimenting with clay and form to speak of the weathered and worn beauty retained in the patinated form. I formulated clay that would respond to firing by taking on a weathered appearance. The strong form of the bowls was a starting point. It was the echoes of strength and evocative character that I wanted to carry forward in combination with the feeling of erosion, the passage of time, and the resultant metamorphosis. Figure 4.29, showing some Neolithic shards fished out of a Loch, illustrates some of the look I was trying to capture.

The use of inclusions in the clay seemed the best way of encouraging surfaces that might show the textural qualities of weathering. I had used this method prior to beginning the work of this thesis. I used inclusions of various sizes, including small stones and rocks of varying composition, as well as slivers of shards from a variety of tableware that I had made as a studio potter that had subsequently been broken intentionally because they were faulty. The choice of tableware as inclusion echoes the idea that British Neolithic makers used pieces of broken

fired pots as part of the body fabric in their making (Gibson 2002). Some inclusions melted out, some softened at the edges, some changed colour, whilst some separated from the body or changed very little. Although primarily chosen for their particular visual qualities, the symbolic nature of these shards added to the narrative of making and using across time.

Surface texturing was produced by several methods prior to stretching the clay slabs used in making. For example, clay was dropped onto textured rubber matting, and carved wooden paddles were used to beat out texture (see Figure 4.30).

Figure 4.30 - Sandy Lockwood, 'Unstan' inspired bowl', wood fired and salt glazed stoneware, 2014

For additional texture, rims were carved or incised both before and after stretching. To produce surface colour changes, I experimented with various formulations of slip (liquid clay) coatings applied to the surface in order to enhance visual interest and variation (see Figure 4.31).

Figure 4.31 - Sandy Lockwood, ‘Unstan’ inspired Bowl, Experimentation show, Project Space, UOW, 2013

The base slip was made from white clay and subsequently developed to crack when applied thickly (see Figure 4.32). This had the effect of changing from white to orange, or rusty, or greyish in colour during the firing process.

Figure 4.32 - Sandy Lockwood, 'Unstan' inspired bowl, woodfired and salt glazed stoneware with slip, 2017

The idea of weathering and my liking for holes came together in the Unstan bowl pieces via the occasional tear or hole that formed accidentally during the stretching process. I subsequently incorporated the practice of poking holes in a clay slab before it was stretched to form the base of the bowl. The holes stretched with the clay and changed shape and form. They thinned at the edges and became irregular and sometimes jagged (see Figure 4.33).

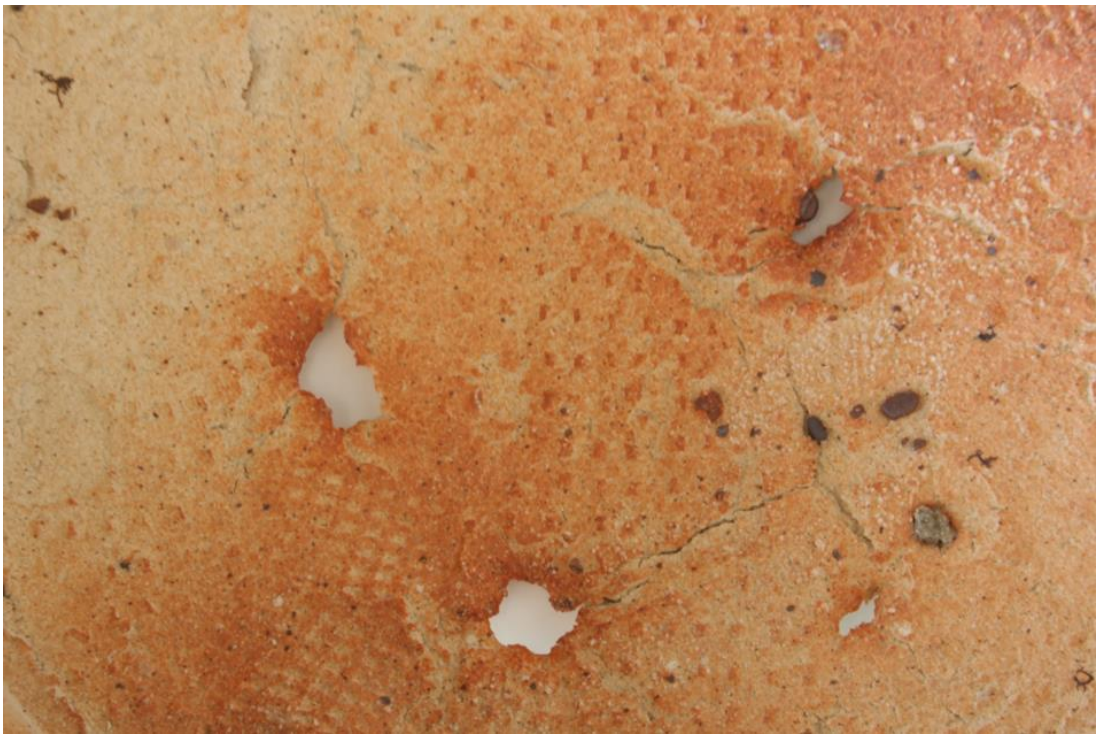

Figure 4.33 - Sandy Lockwood, Base of 'Unstan' inspired bowl, woodfired and salt glazed stoneware, 2017

Whilst this kind of stretching is not weathering per se, it does subject clay to stress that produces a structural breakdown visually similar to the removal of material by water and wind through weathering. Thin corroded-looking edges, and cracks where material has lost its strength evoke a sense of material fragility. The holes and cracks also exist as elements of pattern which provide added visual interest and complexity.

The original Unstan bowls were relatively sturdy and designed to stand up to use. In contrast, some of my bowls are intentionally much thinner in sections as a result of stretching clay, in order to reflect the process of erosion and weathering. This structural fragility before firing made them quite difficult to dry, bisque, and glaze and fire without warping, slumping, or cracking. During the

project I developed a number of techniques to address these problems. The forms were made and initially dried in bowl-shaped formers. During bisque and glaze-firing, they were placed on specially made dish-shaped supports using small wads of clay. The wads of clay were in turn placed on small piles of alumina, which acted as a roller to accommodate movement and shrinkage of the clay body during the firing process.

4.5 Sieves

The ‘Sieves’ evolved directly out of my making process. I named the series ‘Sieves’ because they vaguely resembled sieve shapes I have in the studio for sieving glaze, or sieves for gold panning or rock sieving in rivers. The material qualities of stretched clay containing ambiguous and intriguing holes carried over from other works in developing this form. The holes formed are similar to those which occurred in the bottoms of the ‘Unstan’ inspired bowls. However, the holes in the sieve pieces were extended in that the material was stretched quite thin and there were more holes. The 'sieves' also presented an opportunity to change the relationship between rims and bases that I employed in the previous ‘Unstan' inspired bowls. The sieves have a less curved base with shorter sides, serving as a pronounced rim that suggests easy holding in the hands. This echoes the sturdy nature of rims in some British Neolithic pots. The sieve pieces were made in two different clays: the black clay and the white clay that I have developed during the course of this project. Some sieves were coated with a slip, to produce a white and orange colour and surface cracking which spoke further of weathering. Inclusions of various sizes were also added, such as small stones, rocks (see Figure 4.34), and slivers of shards from previous works (see Figures 4.35).

Figure 4.34 - Sandy Lockwood, Detail shot of raw 'Sieve' form showing embedded rocks, 2017

Figure 4.35 - Sandy Lockwood, Detail shot of 'Sieve' form showing slivers of porcelain shards embedded in base, 2017

The bases were formed from stretched slabs, with holes made in the slab prior to stretching. These were then placed on plaster or sand formers to hold their shape while drying. Coils for the rims were added, and these were textured in various ways. The pieces were then fired either horizontally on carefully placed wadding supports, or vertically against the wall of the kiln. Some of the sieves curved considerably during the firing when placed against the kiln wall (see Figure 4.36). For some pieces, the curvature added something to their expression as they moved away from the original idea. This is a good example of the material 'having a say' in the making process that arises during the process of metamorphosis.

Figure 4.36 - Sandy Lockwood, Two Sieve forms curved during firing when leaning against the kiln wall, 2017

The holes in these sieves invite the idea of seeing through the piece to a place beyond, in both the literal and the metaphorical sense. This beyond can be physically present, where the holes act as a kind of frame to look through. The beyond can also be metaphorical in the sense of looking beyond present time, either backwards or forwards, and responding imaginatively. As with previous bowls, the holes and cracks have visual qualities in and of themselves, but in this instance there is an added attribute because it is easier to hold them up to the light and see patterns cast or light shining through (See Figure 4.37). They present a particularly interesting experience when hung on a wall, or under various lighting conditions (see Figures 4.38 and 4.39).

Figure 4.37 - Sandy Lockwood, Row of 'sieve' forms against studio windows showing light through, 2016

Figure 4.38 - Sandy Lockwood, 'sieve' form showing light through, 2017

Figure 4.39 - Sandy Lockwood, 'sieve' form showing light through, 2017

In an archaeological investigation there is a process of sieving dirt to recover small pieces of artefact. Making sieves that look like recovered artefacts places them in an ambiguous position. They raise the question of whether there is a

reference to sieving for ancient remains, or a reference directly to the remains recovered, or perhaps both and more. Inspired by archaeological forms but then developed in correspondence with materials, my sieves do not just represent Neolithic artefacts, but signify the extension of the process of stretching clay to achieve something visually engaging. I see the holes as the motivating theme of these pieces. The sieves have become a container for the holes. This is accentuated if they are held up vertically to the light or to a wall were light shines through them casting a mixture of shadows and light spots.

4.6 Standing Stones

Being physically close to the standing stones on Orkney was one of the most profound aspects of this research project. The impact came from several simultaneous and intense affective experiences enmeshed together. Their scale, material qualities, and connection to the surrounding landscape led me to understand their power to invoke an affective response at a deep level, which has continued into the present since their beginning. This kind of response is another meshwork thread that links me now to Neolithic makers then. As I experienced them, the standing stones signify direct human connection to materials and to the unmediated natural world in all its materiality.

My response was not to fabricate maquettes of standing stones, but to tap into that part of my affective meshwork that was enlivened by the original experience, and carry this forward in the process of making from the inside. What has emerged is a series that combines something of the sense of standing stones in pieces of smaller scale, with different colouring and surface texture that still convey ‘stoneness’. These pieces speak of surface weathering, erosion, and deep time. For me the response they invoke lies mainly in the affective realm. It is complex and deep, and lies just out of reach of words, as is often the case for the affective meshwork. They invite a kind of opening up to their message via a bodily response.

Forming these pieces presented a number of challenges because I wanted the spontaneity of the making method to remain prominently visible. After several

rounds of development, the chosen method was to fold clay over a piece of wood like a gigantic ‘paddle pop stick’ and then beat the surface with rope wrapped around a mallet. This produced strong rope impressions that are reminiscent of preserved ripples on sand beaches, such as those formed 1.6 billion years ago which are now preserved in rock in the Northern Territory (see Figure 4.40).

Figure 4.40 - 1.6 billion year old sand ripples preserved in rock, MacDonald Ranges, Northern Territory, Australia, photo by Dr Peter Lockwood, 2017

This rope impression technique also reflected the use of rope patterning used by Neolithic makers (see Figure 4.41).

Figure 4.41 - Two examples of rope impressions on Neolithic pots, Orkney Museum, Scotland, photo by author, 2014

In my ‘standing stones’, the hollows left by the removal of the timber reduced the chance of structural cracking during firing. The clays used also had stones as inclusions kneaded into them before the pieces were constructed, as temper and to add an element of textural randomness to the surfaces (see Figures 4.42 and 4.43).

Figure 4.42 - Sandy Lockwood, Two black 'standing stones', 2017

Figure 4.43 - Sandy Lockwood, Detail showing texture of black ‘standing stone', 2017

A white slip was poured over some of the black forms before firing. The slip was rubbed back in parts to expose the shinier clay surface underneath. This technique meant that the slip was not uniform in thickness and thus produced varying shades and patterns across the surface (see Figures 4.44 – 4.46). Additional depths to the surface cracking, texture, and colour variation occurred in response to the firing.

Figure 4.44 - Sandy Lockwood, Two images of slip covered black 'standing stones', 2017

Figure 4.45 - Sandy Lockwood, Slip covered black 'standing stones', 2017

Figure 4.46 - Sandy Lockwood, Slip covered black 'standing stones', 2017

The white stoneware clay pieces were coated with a dry slip that cracks and produces a range of colourings from white through grey to orange (see three examples in Figure 4.47).

Figure 4.47 - Sandy Lockwood, Three images of white slip covered 'standing stones', results from two different firings, 2017

It was necessary that these pieces stood upright in the kiln, so they needed to be made stable and this partly dictated their form. The scale of the standing stones was restricted as the relevant part of the kiln had a height limit of 25cm. Additionally, these pieces were the maximum weight that I could realistically lift and move during making and firing. Firing of these pieces had to be managed carefully to avoid any fast temperature rise which could cause cracking. Even with careful management of firing, bringing a large number of unpredictable variables together meant that losses from structural cracking were quite frequent, and, as well, chance dictated that some others were less visually and affectively successful.

4.7 Fish Boxes

As discussed in Chapter One, at Skara Brae and the Ness of Brodgar dig on Orkney, partly buried stone structures emerging from the ground fascinated me. I wondered what they were for, and initially I thought they were some sort of hearth. Speaking to a local guide, I was told that they were possibly some sort

of box to contain fish or lobsters caught from the sea or the lake nearby, or perhaps to store live bait for catching fish (see Figures 4.48 and 4.49).

Figure 4.48 - Reinforced Fish box, Skara Brae, Orkney, Scotland, photo by author, 2014

Figure 4.49 - Reassembled fish box, Orkney Museum, Orkney, Scotland, photo by author, 2014

Whatever the exact purpose of these boxes, they are intrinsically interesting and visually engaging. Their sculptural qualities interested me. Since I initially came to see them as ‘fish boxes’, this is how I continue to imagine and name them. The intersecting planes of natural material hewn from local rock with surface patterning became a stimulus for exploration. In part my intention was to try to distil the elements of the fish boxes, and represent them within my work in a form with a similar rasa. This intent was also reinforced by curiosity and a desire to make from the inside as described in Chapter Three, using flat sheets of clay in order to see where the process led. What emerged were planar sculptures that have a presence that I did not quite expect when I made them (see Figure 4.50).

The making process began by stretching slabs of black clay with inclusions, and cutting them into sections for assembly. When they had dried and stiffened enough, these sections were butt-joined and reinforced with coils. This reinforcing along the seams is reflective of the original fish boxes, which were also sealed in their corners with clay, presumably to make them hold water. I wanted to blast these pieces with heat, so they were placed in the throat areas of the wood kiln near the fire box. The height restriction in this area of the kiln was 40cm, which determined the maximum size that these pieces could be.

The harsh firing conditions of these pieces subjected them to significant in-kiln weathering that led to the destruction of a number of pieces. Those that did survive capture the sense of the flexing, cracking and movement that threatens to destroy them. It seems as if they were recovered just in the nick of time. It is the vitality of this impending destruction that gives these pieces a raw, strong presence and intense affective engagement.

Figure 4.50 - Sandy Lockwood, Fish boxes, woodfired, 2016

4.8 Arrow Heads

Several thoughts and feelings came to mind when I viewed Neolithic arrowheads at digs and in museums in the United Kingdom and Denmark. They appeared to me like small sculptures that were widely varied in individual form, but were based on a familiar shape (See Figure 4.51). As well as variations in their form, arrowheads vary greatly in colour, texture and response to light.

Figure 4.51 - Selection of Neolithic arrowheads, Blythe House, London, photo by author, 2014

Whilst using the arrowhead form closely as a starting point in my making, I was searching for something beyond mere copying to try to express the sculptural qualities of these intriguing artefacts in my work. I decided to carve each arrowhead individually to ensure a variety of shapes and looks, and to keep the scale to more or less the same as the recovered arrowheads.

Porcelain clays were initially used as fired porcelain reflects some of the qualities of flint such as fine edges, translucency, and colour variation. Other clays were also used to provide contrast in colour and texture (see Figure 4.52).

Figure 4.52 - Sandy Lockwood, Carved porcelain arrowheads, woodfired and salt glazed, 2013

I made the arrowheads by partially drying a piece of roughly formed clay, and then carving pieces with a knife to produce a look somewhat similar to knapping. The process was one of cutting away to reveal the form. The edges were left sharp and were not smoothed off. The firing process then softened and weathered them. These were such a pleasure to make. Small and hand-

held, they have such potential for variety in pattern and colour (see Figure 4.53).

Figure 4.53 - Sandy Lockwood, Carved porcelain and stoneware arrowheads, woodfired and salt glazed, 2013

Figure 4.54 - Sandy Lockwood, Carved porcelain and stoneware arrowheads, woodfired and salt glazed, 'Metamorphosis' Exhibition, Project Space, UOW, Wollongong, 2013

When grouped together the arrowheads offer the possibility of displaying dynamic energy. My intent was to produce a mass of these and pin them to a wall as is done in museum displays of multiple arrowheads. In massed museum displays, for example in the Danish National Museum, Copenhagen (see Figure 4.55), the arrows seemed to be heading somewhere. They had a busy intensity like a swarm of bees. This arrangement made a very impressive pattern.

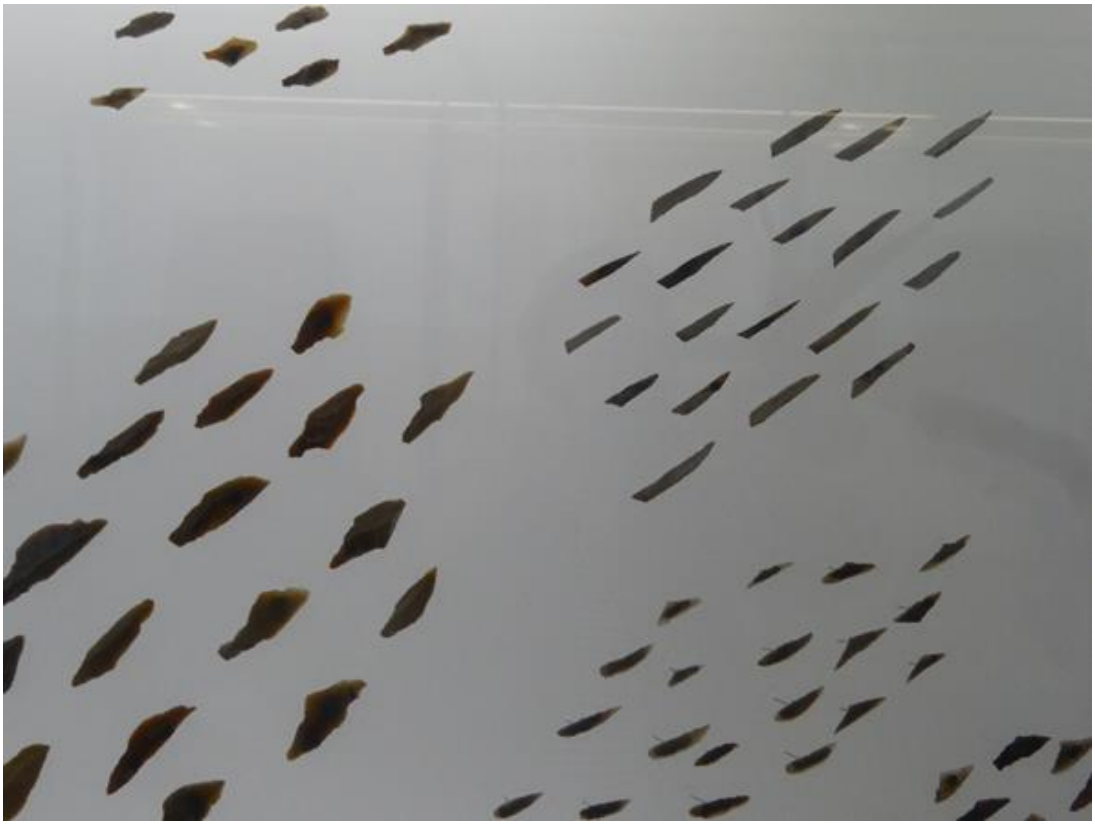

Figure 4.55 - Flint arrowheads, Danish National Museum, Copenhagen, photo by author, 2014

In 2017 I also saw an inspiring display of arrowheads in the Museum of Old and New Art in Hobart, Tasmania (see Figure 4.56).

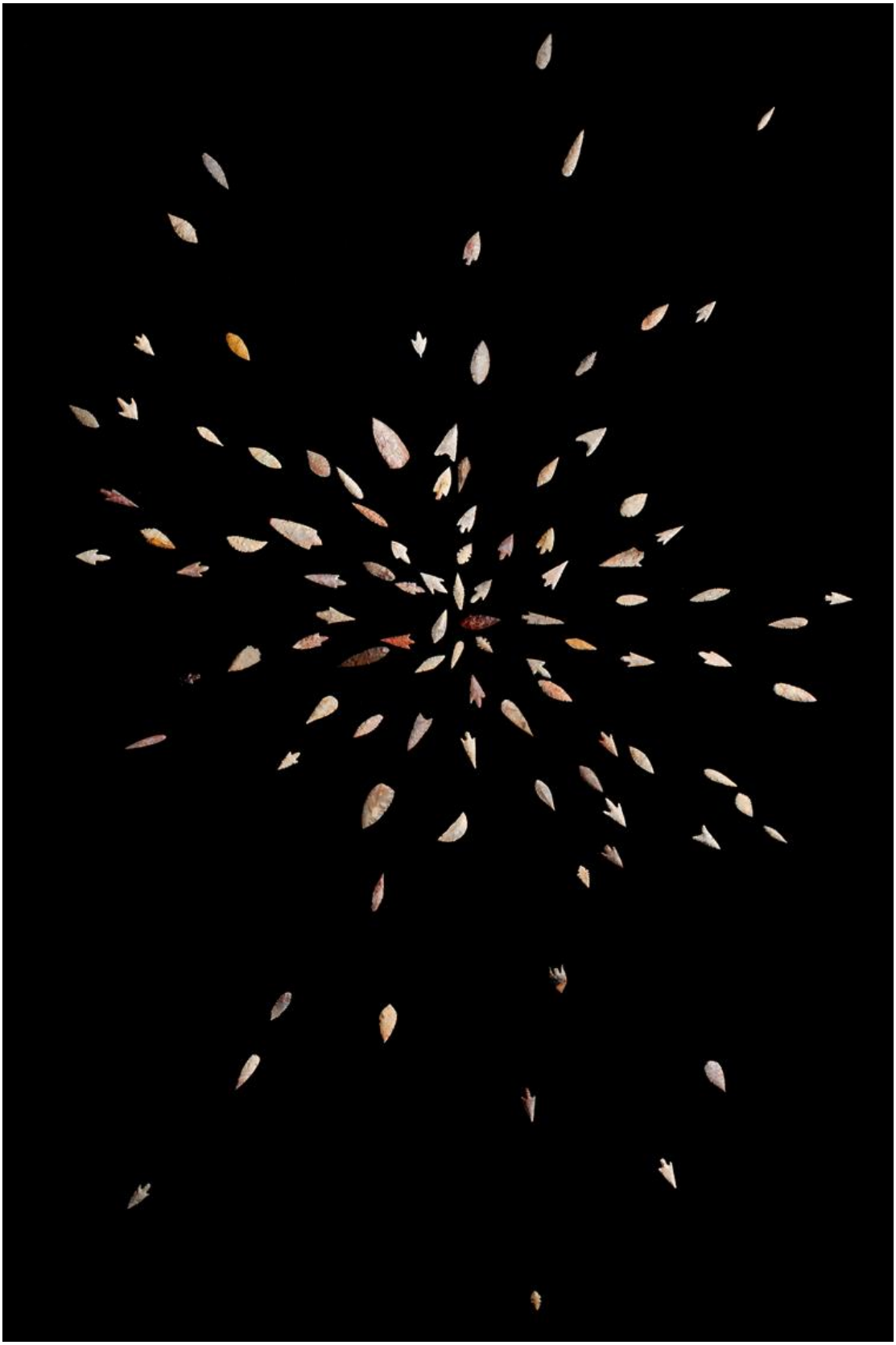

Figure 4.56 - Flint arrowheads, Neolithic projectile points, c. 5300–3000 BCE Egypt, Predynastic Period, Mona Museum, Tasmania, Source: Mona Media Department, use permission granted

When first thinking of a mass display of my arrows, a thousand remembered images of arrowheads were going through my mind. It seemed that *en masse* these pieces could show something of the passage of time and connection. Display preferences included consideration of how they would be mounted so that the wadding mark, produced through firing in the wood and salt atmosphere, would not interfere with the surface that would be exposed for display. This was resolved by mounting the pieces on pins so that the wadding marks could, where appropriate, be faced to the wall and not be visible.

4.10 Discovery Pieces

The final sequence of works discussed in this chapter is the discovery series. These sculptures came out of the momentum and energy of making within the overall PhD research project. When I was making preliminary clay and rock tests in 2013 for other works described in this chapter, I noticed that some of the results were like very small sculptures in their own right (see Figure 4.57 and 4.58). The photos I took of these tests suggested possibilities of form at a larger scale, even though each test piece was only about 50mm high.

Figure 4.57 - Sandy Lockwood, Two images of rock/melt tests fired in 2013

Figure 4.58 - Sandy Lockwood, Two images of rock/melt tests fired in 2013

These images quietly stayed with me as I made the more referential pieces such as the querns and sieves. Later, when I started to reconsider the bases for the axes, I developed a method of making that suggested the process of weathering and metamorphosis, and uncovering artefacts in a dig.

The intense and very direct bodily act of making these pieces has been both exhilarating and liberating. The action was strongly haptic as my hands grabbed random handfuls of clay from a large heap and squished them together until something happened with the form. My body was making in close cooperation with the clay as an act for its own sake. In this process I felt an intensity of freedom I have not experienced before in making.

A number of thoughts arose as narrative threads to surround the developing works. The key idea of discovery had a strong resonance. It seemed that the initial theme of these pieces was discovery in layered material. For example,

shards can be discovered on an archaeological dig, and in the wall of an archaeological trench. There is also the kind of discovery that I make by working in this energetically intuitive way, by bodily thinking through making. I discover meaning that emerges from the direct rhythmic movement of placing pieces of clay together to build up the form. This working is very much the epitome of working from the inside, with the material making a strong contribution. The joins are minimal and informal, and rely on the action of salt in the firing for a final gluing together. This way of making seems to have an optimal range of size that maintains the directness of my interaction with the materials. Size also relates to manageable structural integrity related to handling the clay without having to visibly 'work' the form so that it will stay together. My desire to fire them at the very front of my kiln in the firebox area also meant that the scale of the works was circumscribed.

When I started making, the precise shape was unknown in advance. I tentatively planned to have spaces and inclusions, and to make the pieces so that they were able to stand up in the firing. These plans evolved along with the pieces. The making actions were guided by bodily sensing and haptic experience. During making, sometimes I would stop and look and notice what was evoked. In this way, the progress of making becomes an interweaving and flow of bodily telling with thinking and articulating. These pieces emerge from an immediacy in making. Thoughts disappear. Hands, body and sensing form the work, and then later the eye and analytical judgement assist my affective response to make a decision about what is next to do on the piece. There is the feeling of a coalescence of material coming together on its own terms. At some unpredicted stage I sense that the making is finished.

Since making these pieces I have started to notice similar expressions of form in the world. My noticing of such things has become more acute. In particular, I noticed similar agglomerative forms which shared the affective qualities of the pieces I am trying to create. The character of this noticing can be partly told by a few examples iterated below in Figures 4.59 to 4.67.

Figure 4.59 - Sandy Lockwood, Firebox crud, rocket firing, 2017

Figure 4.60 - Native copper fragment – Source: http://www.kalindi.co.in/copper-ore-1845593.html

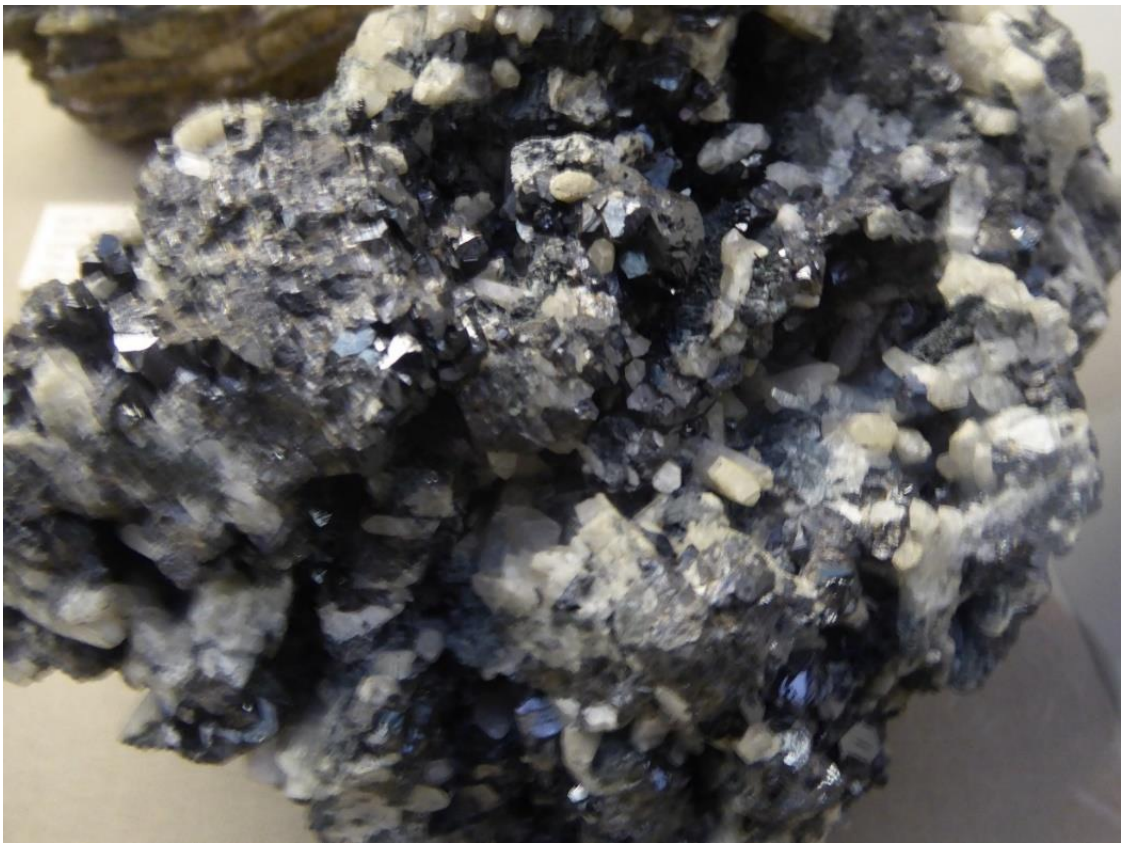

Figure 4.61 - Cassiterite with quartz from part of Goon barrow china-clay pit, St Austell which was formerly Bean Mine which worked for tin, Royal Cornwall Museum Truro, UK, photo by author, 2014

Figure 4.62 - Mudbrick wall, author's Balmoral house showing stone inclusions, photos by author, 2017

Figure 4.63 - Road base on road near author's home, Balmoral Village, NSW, photos by author, 2017

Figure 4.64 - Stone wall in Japan, photo by author, 2015

Figure 4.65 - Fragment of ‘Campo Del Cielo' meteorite, Argentina, around 4 billion years old, photo by author, 2017

Figure 4.66 - Two images of Karsts in Halong Bay, Vietnam, photos by author, 2002

All these images are of agglomerative things that produce a similar response in me to that evoked by my discovery pieces. The pieces in the discovery series have evolved from their initial expression. I first made these new pieces from black clay alone with embedded porcelain shards or chunks of quartz (see Figure 4.68).

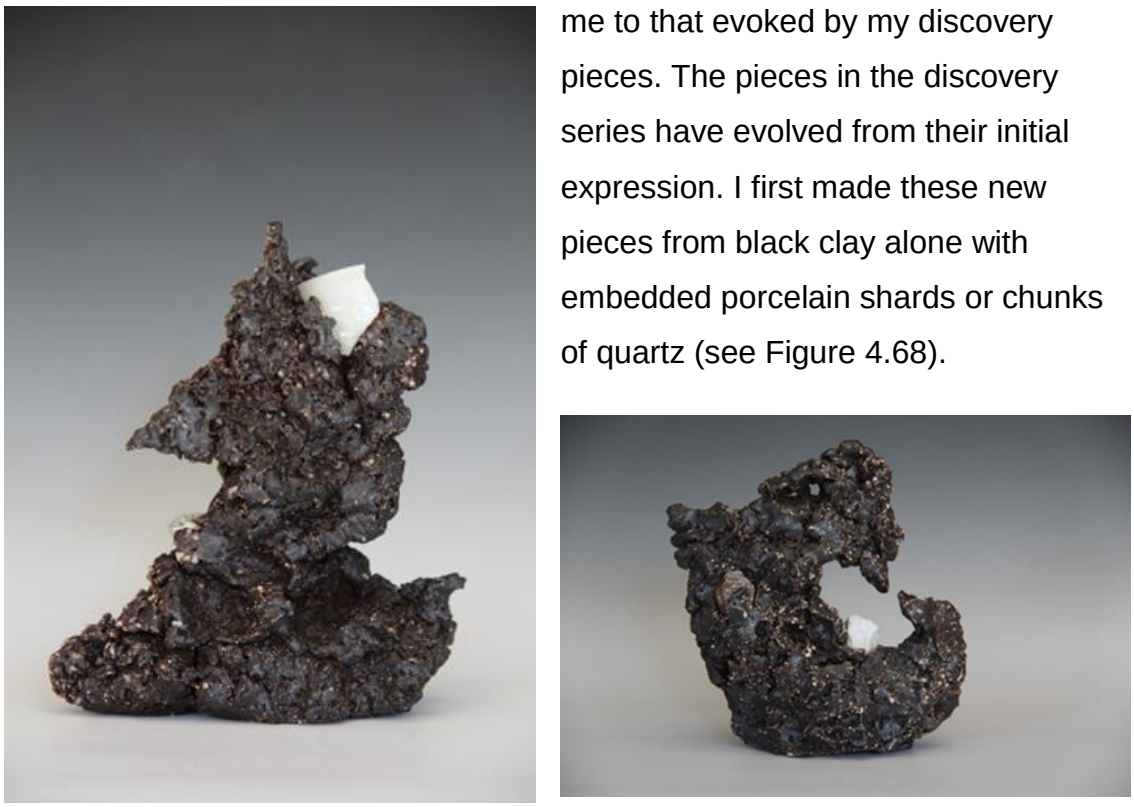

Figure 4.67 - Sandy Lockwood, Two sculptures from the 'Discovery' Series, 2017

After experimenting with applying slip to the standing stones, I became very engaged with the complexity and depth of surface that was produced, and so I started to do this on the discovery series to see what would happen (see Figures 4.69 and 4.70). The use of poured slip added an exciting and dynamic element to these pieces. The two slips that were used resulted in colour change and cracking on the black clay, which provided visual engagement and an enhanced sense of the weathering of these objects. These sculptures were fired in hotter areas within the kiln to produce a certain amount of distortion or melting and transformation. I wanted to increase the chance that some of the included rocks would melt out, and that the porcelain shards would soften and merge into the piece. Firing to very high temperature also increases the fusing between the clay elements that comprise the piece, thus enhancing structural integrity.

Figure 4.68 - Sandy Lockwood, Two recent works from the 'Discover' Series', black clay with slip applied, 2017

Figure 4.69 - Sandy Lockwood, 'Discovery Series', black clay with slip applied, 2017

After looking at these sculptures for a while, the narrative of their being emerged in words. They spoke of:

- The process of discovery at both the literal and the metaphorical levels.
- Discovery within the context of an archaeological dig.
- The act of noticing something small standing out from the background.
- The material qualities of the emerging thing becoming evident and cohering into recognition of what is being seen.
- The layering process that creates depth and visual complexity.

The discovery series pieces also have another layer of meaning that emerges from, and possibly communicates with, non-articulated (bodily) knowing and doing. The locus of meaning in this instance is the rasa of the pieces that emerges as they are formed in parallel with my evolving affective meshwork. It is as if my body cooperates with some deep inarticulable expression enmeshed within the making process to reveal a telling. This enmeshment subtly guides the placement of clay within a broad field of intention to capture an abstract rasa that appears in the finished piece. It is as if my intention is 'to make a piece

something like this', and my meshwork acts so that my body makes in such a way to capture an ineffable something.

4.10 Conclusion

It is through the evolution of practice during this project that I have come to realise more fully an understanding of the process that I had been trying to articulate since its beginning. In some pieces, it is the rasa of pure movement which is sensed as an abstract dynamic emanation of the sculpture. This could be a suggested sense of a dancing body caught in mid-movement, leading the eye into the adjacent ethereal space. In other pieces, the rasa approaches the edge of representation. This understanding leads me to view my madeworks as sculptural, as they are expression in 3D form. The sculptures exhibited as part of this thesis are very much about discovery. In this 3D form, they refer to literal discovery from the earth, and also to the making process as an act of discovering what may be. This discovery is one of making something that is not in the world yet. It is not an abstraction of an extant thing but a unique arising out of correspondence with clay that participates in its own coalescence. This means they are impossible to reproduce. Each act of making is a unique result from the unique nature of the meshwork at that time. The intensity of our bodies (the human body and the body of the material) meeting in this way means that after, making several pieces in a session, I often have to walk away, as I become drained and I feel I can no longer 'see' them. The making method and spontaneous flow of creation are not precise, predictable or reliable. My response is to become absorbed in the process, trying not to judge and prescribe. As a result, I need to come back at another time to assess my outcomes. I assess whether the piece has something to say. However, I do not wish to romanticise or privilege this way of making. Just because it is making from the inside, and in cooperation with materials, does not *ipso facto* mean it automatically produces good sculpture. There is a role for judgement. This judgement is not just thinking. It has bodily and affective components. It sometimes appears superficially as thinking because words are required to articulate it. For example, I need to actively consider whether there is any

awkwardness or failure of visual coherence. This is achieved by sensing and engagement of my affective meshwork as much as by thinking and articulating. During such a review I select the pieces that speak to me and reject those that I assess ‘don’t make the grade’.

In considering my madeworks I made a personal discovery. I have uncovered something of the scope and nature of the extensive meshwork of influences from my world, and my history of noticing that has been distilled, reinforced and reiterated. It feels to me as though making these sculptures is a coming full circle back to the essence of what has engaged me in the world through the course of my life.

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CONCLUSION

The genesis of this thesis was my curiosity about the engagement I felt with things showing visual complexity, patination, weathering and evidence of human hands. This long-standing curiosity has been woven into my studio practice, and my making with clay has always centred around and arisen out of the materials that I use. I use woodfiring as a form of weathering. The visual vocabulary of my practice is materials and evidence of the maker.

My curiosity and engagement with the material qualities of weathering led me to British Neolithic artefacts. Thus, this thesis began with the journey of discovery that travelled the two entwined paths of making and writing. My research was to follow where each path led, as illuminated by my evolving questions. These two paths represent discoveries told in the language of words and the language of materials and making. The destination was always going to be provisional and the path winding and complex with some side tracks and dead ends. The journey nonetheless has been unexpectedly fruitful.

My research activity included reading across a number of disciplines and undertaking field work and museum research in Britain, Denmark and Cyprus, combined with a program of focused making. The written outcome of this activity contains different perspectives on my research and how they relate to my making practice. Each of the four chapters approaches my discoveries from a different angle.

In Chapter One I considered aspects of change in materials and madeworks induced by weathering processes in the environment and in my woodfiring. I identified the material qualities of the things that engage me. In response, I described a new understanding of *aesthetics derived from material instability*.

In Chapter Two I discussed materials and making in the context of British Neolithic times and in my practice. I explored the possibility of commonalities between British Neolithic makers and me, and what can be learned from this. I argued that despite the temporal difference, making then and making now have many important commonalities.

Chapter Three addressed the question of how to understand the constituent components of making, how we understand madeworks, and how things look. This topic was explored from many perspectives, including Eastern philosophy, Western philosophy, neuroscience, and anthropology. The model of the affective meshwork was employed to assist in characterising the complex and changing flows that constitute the act of making as well as how we respond to the world. The discoveries in Chapter Three, by implication, reflect on the earlier chapters. I concluded that there are a number of co-contributors to how we see and understand the world, and that many of these do not lie in the realm of mental consciousness but are below the surface and lie in the body. Importantly, this kind of knowing and understanding can be told through the act of making. In light of this, it has been useful to develop the model of the affective meshwork that facilitates the integration of the diversity of experience, thought and knowing.

In Chapter Four, I set out to articulate the often inarticulable process of creative discovery and making that accompanied the written component of this thesis. I explained the sources of Neolithic resonance that formed the starting point to each of the areas of making in this body of work, and how these pieces evolved in a process of bodily thinking through making to create affective meshworks with their Neolithic counterparts.

There is a common narrative device in story telling of arriving where you started, and having a different perspective or being a different person. This was very much the case with the process of arriving at these works. The project was also a path of discovery that identified and distilled the essence of what I have been seeking to comprehend. These pieces are a telling of thirty five years of making from the inside, with four years intensively focussing on weathering and metamorphosis. They are the product of a long correspondence with materials, and an important marker on my ontological path.

In summary, my practice-based research aims to contribute to an understanding of the complex nature of making in cooperation with materials, and how we understand our relationship with making and the world.

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